

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

MARKETING and TRANSPORTATION SITUATION

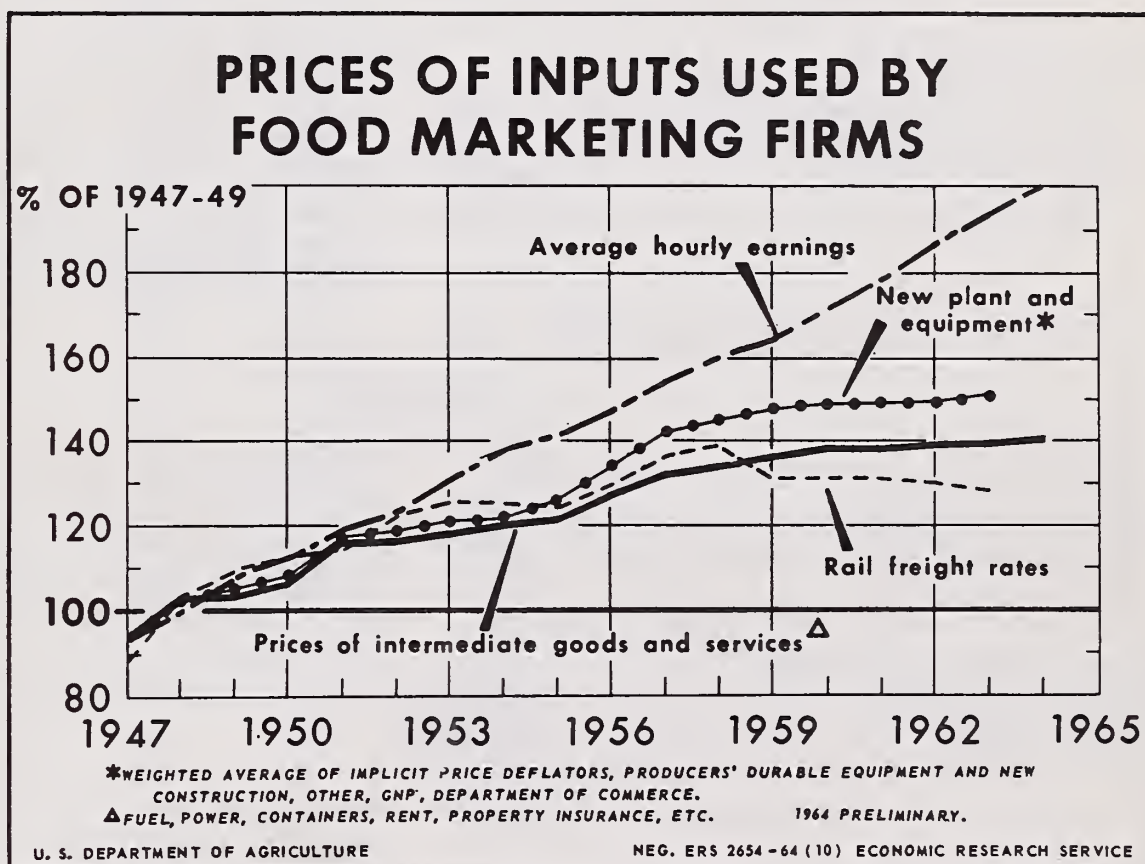


MTS-155

For Release November 21, A.M.

NOVEMBER 1964

Except for wages and salaries, prices paid by marketing firms for goods and services generally have been stable in recent years. Increases in productivity, however, have limited the rise in labor costs per unit of product marketed to 4 percent from 1960 to 1963, although employees average hourly earnings (including fringe benefits) increased 12 percent. The average level of rail freight rates for agricultural products has declined in recent years because of selective rate reductions, reflecting technological improvements and active truck and barge competition. Truck rates for interstate shipments of unmanufactured agricultural commodities are unregulated and generally unpublished. The scant information available regarding these rates indicates relative stability.



1965 OUTLOOK ISSUE

- Retail Beef Price Specials
- Developing and Testing New Products
- "Regulated" Motor Carriers in Hauling Agricultural Commodities
- Shipping California-Arizona Fresh Fruits and Vegetables

Published quarterly by
ECONOMIC RESEARCH SERVICE • U. S. DEPARTMENT OF AGRICULTURE

STATISTICAL SUMMARY OF MARKET INFORMATION

Item	Unit or base period	1963		1964		
		Year	July-Sept.	Jan.-Mar.	Apr.-June	July-Sept.
<u>Farm-to-retail price spreads</u>						
Farm-food market basket: <u>1/</u>						
Retail cost	Dol.	1013	1021	1011	1004	1024
Farm value	Dol.	374	378	372	361	384
Farm-retail spread	Dol.	639	643	639	643	640
Farmer's share of retail cost	Pct.	37	37	37	36	38
Cotton: <u>2/</u>						
Retail cost	Dol.	2.17	2.17	2.18	2.18	---
Farm value	Dol.	.32	.32	.32	.32	---
Farm-retail spread	Dol.	1.85	1.85	1.86	3/1.86	---
Farmer's share of retail cost	Pct.	15	15	15	15	---
Cigarettes: <u>4/</u>						
Retail cost	Ct.	29.6	---	---	---	---
Farm value	Ct.	3.78	---	---	---	---
Federal and State excise taxes	Ct.	12.9	---	---	---	---
Farm-retail spread excluding excise taxes	Ct.	12.9	---	---	---	---
Farmer's share of retail cost	Pct.	13	---	---	---	---
<u>General economic indicators</u>						
Consumers' per capita income and expenditures: <u>5/</u>						
Disposable personal income	Dol.	2125	2131	2195	2249	2269
Expenditures for goods and services	Dol.	1980	1989	2041	2066	2102
Expenditures for food	Dol.	401	402	410	413	420
Expenditures for food as percentage of disposable income	Pct.	18.9	18.9	18.7	18.4	18.5
Hourly earnings, production workers, manufacturing: <u>6/</u>	Dol.	2.31	2.30	2.38	2.36	2.38
Hourly earnings of food marketing employees <u>7/</u> ...	Dol.	2.17	2.17	2.24	2.23	---
Retail sales: <u>8/</u>						
Food stores	Mil. dol.	4929	4897	5261	5234	5301
Apparel stores	Mil. dol.	1205	1204	1316	1364	1267
Manufacturers' inventories: <u>8/</u>						
Food and kindred products	Mil. dol.	6028	5979	6009	5910	5823
Textile mill products	Mil. dol.	2886	2668	2763	2803	2831
Tobacco products	Mil. dol.	2314	2339	2297	2263	2241
Indexes of industrial production: <u>9/</u>						
Food and beverage manufactures	1957-59=100	117	117	120	120	---
Textile mill products	1957-59=100	117	119	121	124	---
Apparel products	1957-59=100	126	127	134	---	---
Tobacco products	1957-59=100	115	116	128	---	---
Index of physical volume of farm marketings	1957-59=100	115	131	110	117	133
<u>Price indexes</u>						
Consumer price index <u>6/</u>	1957-59=100	106.7	107.1	108.3	108.2	108.4
Wholesale prices of food <u>6/</u>	1957-59=100	100.4	100.2	101.3	100.7	101.9
Wholesale prices of cotton products <u>6/</u>	1957-59=100	100.3	99.9	98.3	98.6	98.9
Wholesale prices of woolen products <u>6/</u>	1957-59=100	100.9	100.6	102.6	103.0	102.9
Prices received by farmers <u>10/</u>	1957-59=100	100	100	97	96	98
Prices paid by farmers, interest, taxes, and wage rates <u>10/</u>	1957-59=100	106	106	107	107	107

1/ Contains average quantities of farm-originated foods purchased per household in 1960-61 by wage-earner and clerical-worker families and single workers living alone. Estimates of the farmer's share do not allow for direct Federal payments to producers, except for the value of wheat marketing certificates. 2/ Data for average family purchases in 1950 of 25 articles of cotton clothing and housefurnishings divided by number of pounds of lint cotton required for their manufacture; see U.S. Dept. Agr. Mktg. Res. Rpt. 277. 3/ Farm-retail spread does not include Federal payments, which began in April 1964, of 6.5 cents per pound made through issuance of payment-in-kind certificates to domestic users of eligible U.S. raw upland cotton. 4/ Data for package of regular-sized popular brand cigarettes; farm value is return to farmer for 0.065 lb. of leaf tobacco of cigarette-types; data for year ended June 30, 1964. 5/ Seasonally adjusted annual rates, calculated from Dept. of Commerce revised data. 6/ Dept. Labor. 7/ Weighted composite earnings in food processing, wholesale trade, retail, food stores, calculated from data of Dept. Labor. 8/ Seasonally adjusted, Dept. Commerce. Sales data for 1963 are averages of monthly totals (unadjusted). Inventory data for 1963 are book values at end of year (adjusted). 9/ Seasonally adjusted, Board of Governors of Federal Reserve System. 10/ Converted from 1910-14 base.

THE MARKETING AND TRANSPORTATION SITUATION

Approved by the Outlook and Situation Board, November 12, 1964

CONTENTS

	<u>Page</u>
Summary	3
Revised Farm-Retail Spreads Statistics	6
Farm-Retail Spreads for Food Products--Recent Trends and Outlook	6
Costs and Profits in Marketing Farm Products	11
Retail Beef Price Specials	18
The Role of "Regulated" Motor Carriers in Hauling Agricultural Commodities in Interstate Commerce	21
Shipping California-Arizona Fresh Fruits and Vegetables by Rail and Truck	29
Developing and Testing New Foods and Fibers	35
Quarterly Data for Market Basket of Farm Foods	42

SUMMARY

A rise of 1 or 2 percent in charges for marketing domestic farm-originated foods in the family "market basket" is probable for 1965. Charges for marketing these foods increased less than 1 percent from 1963 to 1964. From 1953 to 1963, these charges increased at a compound rate of 2 percent annually.

Prices paid by food marketing firms for goods (except raw materials) and services will continue to increase moderately. The upward trend in labor costs per unit of product marketed is not likely to be reversed, in spite of gains in labor productivity. Costs of other services are expected to rise.

Prices farmers received for the foods in the market basket probably will average a little lower in 1965 than in 1964 because of decreases in prices of some fruits and vegetables and turkeys and eggs. Farmers' prices will be about the same this year as in 1963.

The retail cost of the farm-originated foods in the market basket probably will be a little higher in 1965 than in 1964.

An increase in the retail cost and decrease in the farm value, even though small, probably would reduce the farmer's share of the consumer's farm-food dollar to about 36 cents from the 37 cents received this year.

The farm value of the farm foods in the market basket in the third quarter this year was 6 percent higher than in the preceding quarter. Higher prices for meat animals, chickens, and eggs accounted for most of this rise. The increase was accompanied by a slight decrease in the farm-retail spread. Retail cost of the market basket foods rose 2 percent.

The third-quarter farm value of the market basket was 2 percent higher this year than in 1963. The retail cost, however, was up less than 1 percent from a

year earlier. Marketing charges were about the same in both periods.

Prices farmers received for Choice grade beef cattle averaged about 9 percent higher in the third quarter this year than in the preceding quarter. Less than three-fourths of this rise was reflected in the retail price of Choice beef, since the farm-retail spread decreased 3 percent.

Returns to farmers from the wheat in a 1-pound loaf of bread increased in the third quarter to 2.7 cents (including the value of the wheat marketing certificate) from 2.3 cents in the second. The farm-retail spread decreased 0.3 cent; the retail price increased 0.1 cent.

Employees in establishments marketing food products earned an average of \$2.23 per hour in August this year, 8 cents more than a year earlier. The rise of about 4 percent was slightly greater than the average annual increase during the past 10 years. Hourly earnings of employees in textile mills, plants manufacturing apparel and related products, and in retail apparel and accessories stores also averaged higher in August this year than in 1963. Improvements in productivity probably kept unit labor costs from rising as much as average hourly earnings.

Selective reductions in rail freight rates for farm products continued in 1963 and in 1964. Truck rates have been relatively stable in recent years. Prices of most goods bought by marketing firms (not including raw farm products) have changed little in 1963 and 1964. Prices of services (not including labor) have risen moderately.

Profit ratios of food manufacturing corporations were higher in the first half of 1964 than in the like period of 1963. First-half profits of 13 leading retail food chains as a percentage of sales were the same this year as last.

Profit ratios of leading food manufacturing and wholesaling companies generally were higher last year than in 1962. Profits of 8 leading retail food chains as

a percentage of sales were the same last year as in 1962, but their profits as a percentage of stockholders' equity were down.

Highlights of Special Articles

Retail Beef Price Specials, p.18--Price "specials" play an important role in meat retailing today. In a cooperative project, 25 retail food chains report regular and special weekly prices for all cuts of meat to the Economic Research Service. These chains have offered frequent specials on nearly all cuts of beef in the last 2 years. Ground beef appeared on special more frequently and porterhouse steak less frequently than other cuts. Generally, the higher the price of a cut, the greater the price reduction. During 1962-64 the frequency of price specials increased about 60 percent; the average size of the price reduction remained fairly constant. Specials tend to become more frequent when retail beef prices are falling.

The Role of Regulated Motor Carriers in Hauling Agricultural Commodities in Interstate Commerce, p.21--Ever since motor trucks became serious competitors of railroads in hauling agricultural traffic in interstate commerce, there has been much interest in knowing the share being moved by trucks. While some studies have been made of truck volume and flow patterns, the hauling of agricultural products by the so-called "regulated" motor carrier has rarely been explored.

Agricultural commodities constitute nearly 4 percent of the total tonnage hauled by regulated motor carriers. However, agricultural freight constitutes a significant share of the business of some carriers. For others, the problem of obtaining backhauls and of seasonality and irregularity of freight movements of nonagricultural products make hauling farm products attractive, at least for some movements and during some periods of the year.

Regulated motor carriers are attracting the more profitable, high-value traffic such as meats and other packing-house

products, dairy products, frozen vegetables, and miscellaneous seafoods. Meat, grain, and wool are among the most significant products hauled by this group of carriers.

Shipping California-Arizona Fresh Fruits and Vegetables By Rail and Truck, p.29-- Service as well as rates greatly influence a fresh product handler's choice between rail and truck carriers. For short hauls, operating cost enable truckers to set their interstate rates below those offered by the railroads. However, the rate advantage shifts to rail for intermediate- and long-range movements.

About two-thirds of the interstate produce shipments from California and Arizona move substantial distances to the heavily populated markets east of the Mississippi River. The railroads' low freight rates attract the bulk of this traffic. Nevertheless, the quality and type of service offered by truck draw many interstate shipments regardless of the length of haul and higher rates asked for the movements.

For some time, rail's and truck's appeal to California-Arizona shippers and their receivers in other States has been changing. Between 1951 and 1960 motor carrier competition slowly reduced the rail share of annual interstate traffic from 87 to 70 percent. This decrease was due largely to a diversion from the rails of shipments moving to destinations west of the Mississippi River. Within the 10-year period, truck's volume to that area was about doubled--to 81,000 carlot equivalents; its traffic share increased from 38 to 73 percent. Trucking gains were also registered in shipments east of the Mississippi River, but the share hauled remained small. While motor carrier traffic jumped from about 1,000 to a little over 17,000 carlot equivalents, truck's share of the movement to eastern markets rose from less than 1 percent to approximately 8 percent.

Developing and Testing New Foods and Fibers, p. 35-- Since 1938, USDA has carried on product utilization research at 4 regional laboratories located in various areas of the country. Each lab devotes special attention to a group of commodities significant to the area. Their main responsibility is to find new and improved uses for farm products. Some new items now on store shelves demonstrate the success of this program. From time to time, scientists issue papers, articles, and books describing research results. About 1,000 patents have been issued to protect the rights of the Government.

A partial listing of achievements includes the commercial processes for production of penicillin and Dextran, a blood plasma extender. Research on cotton fibers has led to wash-and-wear and to stretch cottons. Frozen citrus concentrates appear on breakfast tables across the Nation because of developments by USDA. Sweet potato flakes are now being processed commercially. White potato flakes, marketed for a decade, are common products on grocery shelves.

The invention of a new process or product does not complete the needed work. A second phase is to market test a development to learn whether it would be acceptable in the market, for what uses, and by whom. This particular phase of activity is performed by the Market Potentials Branch of ERS. Examples of market testing include studies on the feasibility of a market for fats in feeds, on the economics of new crops, and on the potential growth of freeze-drying. In addition, a continuing program of testing specific new products is carried on. For instance, market studies have been done on both white and sweet potato flakes, dehydrofrozen apple slices, the WURLAN process for wool, and superconcentrated apple juice. Market testing with a good record for success in predicting acceptability of new products is an integral part of the utilization program.

REVISED FARM-RETAIL SPREADS STATISTICS

The farm-food market basket statistics presented in this issue (tables 1-2) have been revised to make use of data from a survey of consumer expenditures conducted by the Bureau of Labor Statistics in 1960 and 1961. These data have been used to calculate new weights for the foods in the market basket. The revised market basket statistics are not comparable with those formerly published.

In the second quarter of this year, the retail cost of the foods in the new market basket was \$1,004 (annual rate), and the retail cost of the old market basket was \$1,076. Comparable reductions occurred in the farm-retail spread and total farm value. These decreases resulted mainly from a change in the concept of the market basket. The new basket includes the average quantities of farm-produced foods purchased per household in 1960-61 by wage-earner and clerical-worker families and single persons living alone. The old market basket was representative of family purchases only. Thus, the quantities of individual foods in the new market basket are smaller than those in the old

market basket. The old basket was representative of purchases in 1952.

The new market basket contains 62 products; 20 of these are new products that replace 19 of the 61 products in the old basket.

Farm-retail spreads for most individual products published in this issue are not comparable with those previously published. The retail prices are those published by the BLS. These prices are now based on quotations collected in 50 urban areas, of which only 14 were among the 46 areas in which the BLS formerly collected prices. Farm product equivalents have been changed for some products.

Farm-retail spreads and market basket statistics for years before 1963 will be published later. The market basket retail cost, farm value, and farm-retail spread in index number form are given in table 21, p. 47. These are based on preliminary estimates of the market basket totals for the years 1947-62.

FARM-RETAIL SPREADS FOR FARM FOOD PRODUCTS--RECENT TRENDS AND OUTLOOK

Marketing Charges Stable

The spread between the farm value and retail cost of the farm-food market basket averaged \$640 on an annual rate basis in third quarter 1964, 1 percent smaller than in the preceding quarter and about

the same as a year earlier (table 17, p. 43). During the first 9 months of 1964, it was less than 0.5 percent higher than in the same period last year (table 2). 1/ Decreases in marketing charges for dairy products, poultry and eggs, and fats and

1/ The "market basket" contains the average quantities of domestic farm-originated food products purchased per household in 1960-61 by wage-earner and clerical-worker families and single workers living alone. Since the market basket does not contain imported foods or fishery products and other foods of nonfarm origin or the cost of meals in eating places, its retail cost is less than the cost of all foods bought per family. The farm value is the return to farmers for the farm products equivalent to the foods in the market basket. The farm-retail spread is the difference between the retail cost and farm value. It is an estimate of charges made by marketing firms for assembling, processing, transporting, and distributing the products in the market basket.

Table 1.--The farm food market basket: Retail cost, farm value, farm-retail spread, and farmer's share of retail cost, 1963-64

Year and month	Retail cost <u>1/</u>	Farm value <u>2/</u>	Farm-retail spread	Farmer's share
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Percent</u>
1963 3/	1,013	374	639	37
1964 3/	1,015	375	640	37
<u>1963</u>				
January	1,016	385	631	38
February	1,020	378	642	37
March	1,013	370	643	36
April	1,004	374	630	37
May	1,002	366	636	37
June	1,007	372	635	37
July	1,021	385	636	38
August	1,023	377	646	37
September	1,018	374	644	37
October	1,012	374	638	37
November	1,011	372	639	37
December	1,010	359	651	36
<u>1964</u>				
January	1,014	376	638	37
February	1,012	369	643	36
March	1,006	371	635	37
April	1,004	362	642	36
May	1,000	360	640	36
June	1,008	361	647	36
July	1,023	382	641	37
August	1,021	383	638	38
September	1,028	388	640	38

1/ Retail cost of average quantities purchased per household in 1960-61 by urban wage-earner and clerical-worker families and single workers living alone, calculated from retail prices collected by the Bur. Labor Statistics.

2/ Payment to farmers for equivalent quantities of farm produce minus imputed value of byproducts obtained in processing.

3/ Preliminary estimates.

: Current data are given in the Statistical Summary, :
: a monthly publication of the Statistical Reporting Service:

Table 2.--The market basket of farm foods: Retail cost, farm value, farm-retail spread, January-September 1964 and 1963

Item	9-month average 1964	9-month average 1963	Change: 1964 from 1963	
			Actual	Percentage
	Dollars	Dollars	Dollars	Percent
Retail cost				
Market basket	1012.99	1013.64	-.65	<u>1</u> /
Meat products	278.90	287.04	-8.14	-3
Dairy products	178.61	177.61	1.00	1
Poultry and eggs	83.99	85.55	-1.56	-2
Bakery and cereal products	159.14	159.07	.07	<u>1</u> /
All fruits and vegetables	230.62	223.36	7.26	3
Fats and oils	34.68	35.29	-.61	-2
Miscellaneous products	47.05	45.72	1.33	3
Farm value				
Market basket	372.52	375.48	-2.96	-1
Meat products	135.23	145.71	-10.48	-7
Dairy products	77.90	76.79	1.11	1
Poultry and eggs	47.17	48.11	-.94	-2
Bakery and cereal products	31.92	32.01	-.09	<u>1</u> /
All fruits and vegetables	60.94	54.57	6.37	12
Fats and oils	10.66	10.36	.30	3
Miscellaneous products	8.70	7.93	.77	10
Farm-retail spread				
Market basket	640.47	638.16	2.31	<u>1</u> /
Meat products	143.67	141.33	2.34	2
Dairy products	100.71	100.82	-.11	<u>1</u> /
Poultry and eggs	36.82	37.44	-.62	-2
Bakery and cereal products	127.22	127.06	.16	<u>1</u> /
All fruits and vegetables	169.68	168.79	.89	1
Fats and oils	24.02	24.93	-.91	-4
Miscellaneous products	38.35	37.79	.56	1
Farmer's share of retail cost				
	Percent	Percent	Percentage Point	
Market basket	37	37	0	
Meat products	48	51	-3	
Dairy products	44	43	1	
Poultry and eggs	56	56	0	
Bakery and cereal products	20	20	0	
All fruits and vegetables	26	24	2	
Fats and oils	31	29	2	
Miscellaneous products	18	17	1	

1/ Less than 0.5 percent.

oils about offset increases for meat products, fruits and vegetables, and miscellaneous products. Marketing firms' costs per unit of product apparently have been relatively stable in 1964 (pp. 11-17).

Farm Value Up Slightly from Second Quarter

The farm value of the foods in the market basket averaged \$384 (annual rate) in July-September 1964, up 6 percent from the preceding quarter and up 2 percent from a year earlier. Higher prices for meat animals accounted for much of the increases from the second to the third quarter this year, but chickens and eggs and several other products also were higher.

Retail Prices Rise

The retail cost of the farm food market basket was \$1,024 in the third quarter of 1964, up 2 percent from the preceding quarter. Retail prices were up for meat products, poultry and eggs, and fresh fruits and vegetables.

The retail cost was at about the same level in the third quarter this year as in 1963. In the first 9 months of this year it also averaged about the same as in the like period of 1963. Lower retail prices for beef and pork offset higher prices for fresh fruits and vegetables.

Farmers' Share Increases to 38 Cents

Farmers receive 38 cents of the dollar consumers spent in retail food stores for farm-originated food in third quarter 1964. This was 2 cents more than in the previous quarter and 1 cent more than in third quarter 1963. 2/

Farm Value for Choice Beef Increases-- Marketing Charges Down

The farm value of Choice grade beef was

up 3.6 cents per pound or 9 percent in third quarter 1964 from the preceding quarter (table 3). The farm-retail spread decreased 1.1 cent to 34.7 cents, and the retail price went up 2.5 cents to 78.5 cents per pound.

The farm-retail spread was still 2.1 cents wider than in the third quarter last year. But farm value was down by 4.0 cents per pound--8 percent lower than a year ago;--the retail price was 1.9 cents lower than a year earlier. The 2 components of the farm-retail spread behaved differently. The wholesale-retail spread averaged 4 percent lower than the year before while the farm-wholesale spread increased 31 percent--from 9.6 to 12.6 cents.

Farm Value of Bread Up in Third Quarter

The farm value of all farm ingredients in a 1-pound loaf of white pan bread increased from 2.9 to 3.3 cents between the second and third quarters of this year, an increase of 14 percent (table 16, p. 42). The third-quarter farm value includes the value of the Government wheat marketing certificate (70 cents per bushel), which amounts to 0.9 cent per pound of white bread. The farm value of wheat alone declined from 2.3 cents to 1.8 cents. The farm-retail spread averaged 0.3 cent less in the third quarter than in April-June. The retail price of bread increased 0.1 cent to 20.7 cents.

The farm value in the third quarter this year averaged 0.4 cent higher than in the same quarter last year. The farm-retail spread was down a corresponding amount. There was no change in the retail price.

Outlook for 1965

The farm value of the foods in the market basket will average about the same this year as in 1963, but a slight decrease in

2/ This estimate of the farmer's share does not allow for Government payments to producers, except for the value of wheat marketing certificates beginning July 1964.

Table 3.--Beef, pork, and lamb: Retail price, wholesale value, farm value, farm-retail spread, and farmer's share of retail price by quarters, 1963-64 ^{1/}

Date	Retail price	Wholesale	Gross	Byproduct	Net	Farm-retail spread			Farmer's
	per pound 2/	value 3/	farm	allowance	farm	Total	Wholesale-	Farm-		share
			value 4/	5/	value 6/		retail	wholesale	
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Percent
	Beef, (Choice grade)								
1963									
Jan.-Mar. ...	84.5	58.2	53.6	4.6	49.0	35.5	26.3	9.2	58
Apr.-June ...	79.1	54.6	50.1	4.5	45.6	33.5	24.5	9.0	58
July-Sept. ...	80.4	57.4	52.3	4.5	47.8	32.6	23.0	9.6	59
Oct.-Dec. ...	80.0	54.2	48.3	4.3	44.0	36.0	25.8	10.2	55
1964									
Jan.-Mar. ...	77.5	52.6	47.1	4.1	43.0	34.5	24.9	9.6	55
Apr.-June ...	76.0	51.1	44.5	4.3	40.2	35.8	24.9	10.9	53
July-Sept. ...	78.5	56.4	48.1	4.3	43.8	34.7	22.1	12.6	56
Oct.-Dec. ...									
	Pork								
1963									
Jan.-Mar. ...	57.5	39.3	29.4	3.4	26.0	31.5	18.2	13.3	45
Apr.-June ...	55.3	39.0	29.9	3.4	26.5	28.8	16.3	12.5	48
July-Sept. ...	59.4	43.3	33.7	3.5	30.2	29.2	16.1	13.1	51
Oct.-Dec. ...	56.8	39.7	29.1	3.3	25.8	31.0	17.1	13.9	45
1964									
Jan.-Mar. ...	55.6	38.9	28.8	3.4	25.4	30.2	16.7	13.5	46
Apr.-June ...	54.8	38.7	29.7	3.9	25.8	29.0	16.1	12.9	47
July-Sept. ...	57.9	42.9	32.8	3.6	29.2	28.7	15.0	13.7	50
Oct.-Dec. ...									
	Lamb, (Choice grade)								
1963									
Jan.-Mar. ...	71.0	45.9	41.9	6.6	35.3	35.7	25.1	10.6	50
Apr.-June ...	71.7	51.7	44.7	5.9	38.8	32.9	20.0	12.9	54
July-Sept. ...	71.8	50.1	43.8	5.8	38.0	33.8	21.7	12.1	53
Oct.-Dec. ...	70.7	47.0	41.2	7.0	34.2	36.5	23.7	12.8	48
1964									
Jan.-Mar. ...	71.9	47.7	44.0	7.0	37.0	34.9	24.2	10.7	51
Apr.-June ...	72.0	54.1	47.8	7.3	40.5	31.5	17.9	13.6	56
July-Sept. ...	75.7	56.3	48.7	6.6	42.1	33.6	19.4	14.2	56
Oct.-Dec. ...									

^{1/} Many of these data have been revised.

^{2/} Estimated weighted average price of retail cuts.

^{3/} Wholesale value of quantity of carcass equivalent to 1 lb. of retail cuts: Beef, 1.35 lb.; pork, 1.00 lb.; lamb 1.14 lb.

^{4/} Payment to farmer for quantity of live animal equivalent to 1 lb. of retail cuts: Beef, 2.25 lb.; pork, 2.00 lb.; lamb, quantity varies by months from 2.33 lb. in April to 2.38 lb. in October.

^{5/} Portion of gross farm value attributed to edible and inedible byproduct.

^{6/} Gross farm value minus byproduct allowance.

1965 seems likely. Increased supplies of some vegetables and fruits are expected to result in prices below the relatively high levels of 1964, if weather conditions are favorable. Prices of eggs and turkeys also may be down from this year. The farm value of the bakery and cereal products will be about the same in 1965 as in 1964 when account is taken of wheat marketing certificates.

Unit marketing charges probably will continue to edge up next year, but the increase over 1964 is expected to be no more than 1 or 2 percent. Marketing charges this year will average less than 1 percent higher than in 1963. Unit marketing charges increased by an average of 2 percent annually (compound rate) from 1953 to 1963.

Prices paid by marketing firms for goods (not including raw materials) and services

have risen in recent years, although rises have been smaller than in the early- and mid-1950's (pp. 11-17). Further increases seem likely. Improvements in labor productivity will offset much of the rise in hourly earnings of employees, but some increase in unit labor costs may be expected. Costs of other services probably will continue to go up slowly.

The total retail cost of the foods in the market basket may be a little higher next year. Increases in marketing charges, although expected to be small, probably will more than offset the slight decrease in the farm value. The retail cost in 1964 will be about the same as in 1963.

The increase in the retail cost and decrease in the farm value may reduce the farmer's share of the consumer's farm food dollar to about 36 cents in 1965--1 cent less than the average for 1964.

COSTS AND PROFITS IN MARKETING FARM PRODUCTS

Labor Costs

Employees in establishments marketing foods earned an average of \$2.23 per hour in August of this year, up 8 cents from a year earlier (table 4). This rise was somewhat greater than the average annual increase during 1953-63. As usual, the average dipped slightly in July and August because of a seasonal increase in the proportion of lower-paid workers.

Average hourly earnings in each of the 3 components of the food marketing industry--manufacturing, wholesaling, and retailing--increased by about 4 percent from August 1963 to August 1964. Hourly earnings in food manufacturing establishments averaged \$2.36 in August this year, 4.0 percent more than a year earlier. This increase was greater than the rise of 3.7 percent in hourly earnings for all manufacturing industries, which increased to \$2.52 in August. In the wholesale food trade, employees averaged \$2.35 per hour

10 cents more than a year earlier. This compares with \$2.52 for all wholesale trade, which was 7 cents higher than a year earlier. Hourly earnings by employees in retail food stores during August averaged \$1.96 per hour, 8 cents more than in August 1963. Average hourly earnings for employees in all segment of food marketing increased more during the 12 months ended August 1964 than during the preceding year.

Changes in average hourly earnings reflect changes in wage rates, in the proportion of employees in lower- and higher-paid groups, and in the number of hours of overtime work for which premium rates are paid. Part of the rise in average hourly earnings has resulted from an increase in the proportion of higher-paid employees.

Labor cost per unit of product handled in the food marketing has not risen as much as hourly earnings in recent years. Unit labor cost in 1963 was 8 percent higher

Table 4.--Average hourly earnings of employees of firms marketing food, tobacco, and textiles and related products, 1947-64

Year and month	Food marketing <u>1/</u>	Tobacco manu- facturers <u>2/</u>	Textile-mill products <u>2/</u>	Apparel and related products <u>2/</u>	Retail apparel and accessories stores <u>2/</u>
	Dollars	Dollars	Dollars	Dollars	Dollars
1947-49 Av.	1.11	0.953	1.124	1.197	1.024
1950	1.22	1.076	1.228	1.240	1.062
1951	1.31	1.14	1.32	1.31	1.11
1952	1.38	1.18	1.34	1.32	1.16
1953	1.46	1.25	1.36	1.35	1.21
1954	1.51	1.30	1.36	1.37	1.25
1955	1.58	1.34	1.38	1.37	1.27
1956	1.67	1.45	1.44	1.47	1.30
1957	1.75	1.53	1.49	1.51	1.35
1958	1.82	1.59	1.49	1.54	1.39
1959	1.88	1.64	1.56	1.56	1.44
1960	1.96	1.70	1.61	1.59	1.46
1961	2.03	1.78	1.63	1.64	1.50
1962	2.10	1.85	1.68	1.69	1.55
1963	2.17	1.91	1.71	1.72	1.59
<u>1963</u>					
Jan.	2.14	1.90	1.69	1.70	1.60
Feb.	2.15	1.92	1.70	1.70	1.57
Mar.	2.16	1.96	1.70	1.71	1.56
Apr.	2.16	1.98	1.69	1.69	1.60
May	2.17	2.02	1.70	1.69	1.59
June	2.17	2.03	1.70	1.69	1.59
July	2.16	2.03	1.70	1.70	1.58
Aug.	2.15	1.83	1.70	1.72	1.57
Sept.	2.17	1.80	1.72	1.77	1.61
Oct.	2.17	1.80	1.72	1.77	1.60
Nov.	2.20	1.88	1.75	1.76	1.61
Dec.	2.20	1.90	1.76	1.77	1.60
<u>1964</u>					
Jan.	2.23	1.97	1.76	1.77	1.63
Feb.	2.23	1.95	1.76	1.78	1.61
Mar.	2.24	2.00	1.76	1.78	1.60
Apr.	2.24	2.03	1.76	1.77	1.62
May	2.25	2.04	1.77	1.77	1.64
June	2.25	2.05	1.77	1.76	1.63
July	2.24	2.05	1.76	1.77	1.62
Aug.	2.23	1.94	1.77	1.80	1.62
Sept.					

1/ Weighted composite earnings in food manufacturing and wholesale and retail food trades calculated by the Econ. Res. Serv. from data of the U. S. Dept. of Labor.

2/ U. S. Dept. of Labor.

than the 1957-59 average, though hourly earnings were up 21 percent.^{1/}

Hourly earnings of employees in the tobacco manufacturing industry averaged \$1.94 in August this year, 6 percent higher than a year earlier. The average declined seasonally in the late summer, like that for the food manufacturing industries. The monthly average reached a peak of \$2.05 during June and July. This peak was 2 cents higher than the peak reached the year before.

Hourly earnings of employees in plants manufacturing textile-mill products and apparel and related products averaged about 4 percent higher in August 1964 than a year earlier. Employees in retail apparel and accessories stores in August this year earned 3 percent more per hour than in the same month of 1963.

Average hourly earnings probably will continue to rise in the months ahead. Improvements in output per man-hour, however, will keep labor costs per unit of product marketed from rising as much as hourly earnings.

Transportation Charges

The revised combined index of railroad freights rates for agricultural commodities averaged 95 last year (1957-59=100), down 1 point from 1962 (table 5). Rates for livestock, fruits and vegetables, all grains, soybeans, and cotton averaged slightly lower than in 1962.

The downtrend in rail freight rates is expected to continue but decreases, as in the past, will be for selected movements. Many of the changes in rail freight rates were made to meet truck, barge, and ship competition. In some cases other modes of transport will find it necessary to meet the lower rail rates if they are to remain

competitive. Truck rates for interstate movements, although unregulated and generally not published for unmanufactured farm products, have been relatively stable; this is expected to continue.

Other Costs

Prices of most goods and services (not including raw materials and labor) bought by marketing firms apparently have changed little this year (table 6). This stability contrasts with the situation a few years ago when prices of most of these items made significant increases each year. In the first half of 1964 prices of fuel, power, and light were lower than in the first half of 1963. During the same period, prices for containers and packaging materials did not change. Prices for services (rents, property insurance and maintenance, telephone, etc.), advanced almost 3 percent from 1962 to 1963 and a similar increase was likely during 1964.

Interest rates charged by banks on short-term loans to businesses have been stable in recent years. Rates in 19 large cities in various sections of the United States averaged 4.99 percent in June 1964. This rate was slightly lower than the rate prevailing a year earlier.

Profits

Food marketing firms.--Profit after taxes for corporations manufacturing food and kindred products (not including alcoholic beverages) in the first half of 1964 averaged 2.3 percent of sales compared with 2.0 percent in a like period of 1963, according to a joint report of the Federal Trade Commission and the Securities and Exchange Commission. After-tax profits averaged 9.2 percent of stockholders' equity in the first half and 8.3 percent a year earlier.

^{1/} This percentage increase is related to hourly earnings and fringe benefits of all workers engaged in marketing food, including imputed earnings of active proprietors and unpaid family workers. For that reason this percentage increase differs slightly from the corresponding percentage gain in hourly earnings of food marketing employees shown in table 4.

Table 5.--Rail freight rate indexes for selected agricultural commodities,
1957-63

(1957-59=100)

Year	Livestock	Meat	Fruits and vegetables	Wheat	All grains ^{1/}
1957	98	108	103	99	99
1958	102	101	101	101	102
1959	100	91	96	100	99
1960	99	92	95	99	98
1961	99	92	95	99	98
1962	98	91	95	97	97
1963 ^{2/}	96	91	94	96	96
	Soybeans	Cotton	Wool	Tobacco	Combined index
1957	98	99	107	108	101
1958	101	101	108	101	102
1959	101	100	85	91	97
1960	102	100	82	90	97
1961	99	100	83	91	97
1962	97	100	83	92	96
1963 ^{2/}	96	99	83	92	95

^{1/} Includes wheat.

^{2/} Preliminary.

All indexes reflect changes in capacity of cars and minimum weight requirements, which in effect lowers the quoted rates.

Profits after taxes averaged slightly higher in 1963 than in 1962 for leading food manufacturing corporations, both as a percentage of stockholders' equity and as a percentage of sales (table 7). For 49 leading companies combined, profits as a percentage of stockholders' equity increased to 10.5 percent in 1963 from 9.9 percent in 1962; profits as a percentage of sales increased to 2.5 percent from 2.4 percent.

Profits after taxes were higher in 1963 than in 1962 for 5 leading wholesale food distributing companies, both as a percentage of stockholders' equity and as a percentage of sales. In 1963, for the seventh consecutive year, profits for the 8 leading retail food chains averaged 1.2 percent of sales. During the same 7-year period, profits as a percentage of stockholders' equity for the same food chain organizations decreased each year, de-

clining from 14.2 percent in 1957 to 10.8 percent in 1963.

Profits of leading retail food chains as a percentage of sales were the same during the first part of 1964 as a year earlier.

Textile, apparel, and tobacco corporations.--For corporations manufacturing textile-mill products, profit ratios were higher in the first half of this year than during the same period of 1963. Profit ratios for all of 1963 were just under the comparatively high level reached in 1962.

Profit rates of corporations manufacturing apparel and other finished textile products were higher during the first half of 1964 than in January-June 1963 (table 8). However, profit ratios for all of 1963 were slightly lower than in 1962.

Profits (after taxes) of corporations manufacturing tobacco products averaged

Table 6 .--Prices of inputs bought by marketing firms, 1947-64
(1947-49=100)

Year and quarter	Intermediate goods and services					New plant and equipment 3/	Yields on high-grade long-term bonds, per annum 4/
	Total	Goods			Services 2/		
		Total 1/	Containers and packaging materials	Fuel, power, and light			
Percent							
1947-49	100	100	100	100	100	100	2.70
1950	106	104	105	100	109	108	2.62
1951	116	115	122	103	117	117	2.86
1952	116	114	118	102	121	119	2.96
1953	119	115	119	104	126	121	3.20
1954	120	116	120	104	127	122	2.90
1955	121	117	121	105	129	126	3.06
1956	127	122	129	109	134	134	3.36
1957	132	127	133	116	139	142	3.89
1958	134	128	135	112	144	145	3.79
1959	136	129	135	113	148	148	4.38
1960	138	130	137	116	151	149	4.41
1961	138	130	136	118	153	149	4.35
1962	139	129	137	117	155	149	4.33
1963	139	128	136	117	159	150	4.26
1963							
Jan.-Mar. ..	139	129	136	118	157	149	4.20
Apr.-June ..	139	128	135	116	158	150	4.22
July-Sept. .	139	128	136	116	159	150	4.29
Oct.-Dec. .	140	128	135	117	161	150	4.33
1964							
Jan.-Mar. ..	140	129	136	117	161	---	4.37
Apr.-June ..	140	128	135	114	162	---	4.41
July-Sept. .	---	---	---	---	---	---	4.41
Oct.-Dec. .	---	---	---	---	---	---	---

1/ Also includes prices of office supplies, restaurant supplies, and many other goods.

2/ Rent, property insurance and maintenance, telephone, etc.

3/ Weighted average of implicit price deflators for producers' durable equipment and new construction, other than nonfarm residential, gross national product, U. S. Dept. of Commerce. Converted by ERS to 1947-49=100.

4/ Aaa corporate bonds; Moody's Investor Service.

5.7 percent of sales in the first half of 1964 and 5.6 percent a year earlier. First-half profits after taxes averaged 12.4 per-

cent of stockholders' equity this year compared with 12.2 percent in 1963, according to the FTC-SEC report.

Table 7.--Net profits (less provision for taxes on income) as percentage of stockholders' equity and as percentage of sales for leading food companies, 1935-63

Year	Food processing companies								5 wholesale food distribu- tors	8 retail food chains
	8 baking companies	7 grain mill products companies	10 meat packers	5 canning companies	10 dairy products companies	9 miscel- laneous food companies	49 companies combined	1/ :		
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Profits as percentage of stockholders' equity 2/										
Average										
1935-39 ...	8.1	9.7	3.6	5.6	7.9	9.8	7.2	---	---	8.4
1940-44 ...	8.7	9.6	7.4	8.6	10.5	9.3	8.9	---	---	8.5
1945-49 ...	15.9	13.8	7.3	11.0	13.5	11.9	11.4	17.0	---	15.5
1950	15.8	13.4	6.0	15.4	13.3	12.6	11.5	10.0	---	14.0
1951	11.9	11.0	5.0	6.9	10.3	9.0	8.5	9.4	---	10.1
1952	12.4	11.0	3.8	7.5	9.9	9.0	8.2	5.8	---	10.0
1953	12.7	10.7	6.6	6.6	11.1	9.3	9.2	7.6	---	11.4
1954	11.9	12.4	2.7	7.8	12.2	9.9	8.9	7.5	---	11.3
1955	12.0	12.4	6.5	10.0	12.0	10.4	10.2	6.7	---	11.2
1956	12.2	11.7	6.9	8.1	12.1	11.2	10.3	7.6	---	13.1
1957	12.6	12.8	3.9	6.0	11.8	11.4	9.6	7.6	---	14.2
1958	11.7	13.5	4.2	8.4	11.5	12.3	10.1	9.7	---	13.8
1959	11.8	11.8	7.4	8.2	11.4	12.6	10.7	8.1	---	12.9
1960	11.7	11.9	6.0	8.6	10.7	12.6	10.3	9.9	---	12.5
1961	9.5	11.4	4.4	7.8	10.2	13.1	9.7	8.6	---	11.3
1962	9.7	11.7	5.2	6.7	10.0	13.4	9.9	5.5	---	11.0
1963	10.8	12.8	5.3	8.0	10.3	14.0	10.5	9.1	---	10.8
Profits as percentage of sales										
Average										
1935-39 ...	6.9	3.8	0.9	3.1	3.1	8.6	3.0	---	---	1.5
1940-44 ...	4.6	3.0	1.2	3.4	2.9	6.3	2.5	---	---	1.1
1945-49 ...	4.8	3.1	1.0	4.1	2.8	5.2	2.4	1.7	---	1.4
1950	4.9	3.1	.8	5.3	3.2	5.3	2.5	1.2	---	1.3
1951	3.5	2.3	.6	2.5	2.2	3.7	1.7	1.1	---	.9
1952	3.6	2.5	.4	2.7	2.1	3.6	1.6	.7	---	.8
1953	3.5	2.5	.8	2.3	2.3	3.6	1.9	1.0	---	1.0
1954	3.5	3.0	.3	2.8	2.6	3.8	1.9	1.0	---	1.0
1955	3.4	3.1	.8	3.7	2.6	4.0	2.2	.9	---	1.0
1956	3.4	2.9	.8	3.0	2.6	4.0	2.2	1.0	---	1.1
1957	3.4	3.4	.5	2.2	2.6	4.1	2.1	.9	---	1.2
1958	3.4	3.9	.5	3.0	2.6	4.2	2.2	1.2	---	1.2
1959	3.3	3.3	.9	3.0	2.6	4.2	2.4	1.1	---	1.2
1960	3.2	3.5	.8	3.4	2.6	4.4	2.4	1.2	---	1.2
1961	2.7	3.2	.5	3.1	2.5	4.6	2.3	1.1	---	1.2
1962	2.6	3.7	.6	2.6	2.5	4.7	2.4	.7	---	1.2
1963	2.7	4.1	.7	3.2	2.6	4.8	2.5	1.2	---	1.2

1/ Includes sugar and corn refining companies, processors of vegetable oils, and companies manufacturing a wide variety of packaged foods. 2/ Ratio of net profits to average of stockholders' equity at the beginning and end of the year. Stockholders' equity is excess of total balance sheet assets over liabilities. 3/ Preliminary.

Compiled from Moody's Industrial Manual and company annual reports.

Table 8 --Net profits (before and after taxes on income) as percentage of stockholders' equity and sales, corporation manufacturing textile-mill products, apparel and finished textiles, and tobacco companies, 1951-64

Year and quarter	Profits as percentage of --											
	Stockholders' equity						Sales					
	Textile-mill products			Apparel and other finished products			Textile-mill products			Apparel and other finished products		
	Before : taxes :	After : taxes :	Pct.	Before : taxes :	After : taxes :	Pct.	Before : taxes :	After : taxes :	Pct.	Before : taxes :	After : taxes :	Pct.
1951	18.7	6.7	10.7	3.4	21.6	9.5	7.3	2.6	2.3	0.7	8.7	3.8
1952	9.1	3.3	11.3	4.7	20.0	8.4	3.9	1.4	2.6	1.1	7.7	3.2
1953	9.3	3.6	11.2	4.9	22.7	9.3	4.3	1.7	2.6	1.1	8.9	3.6
1954	4.9	1.5	10.0	4.4	21.4	10.2	2.5	.8	2.4	1.1	8.9	4.2
1955	10.2	4.5	12.7	6.0	24.2	11.4	4.3	1.9	2.8	1.3	10.2	4.8
1956	11.1	5.4	16.5	8.1	24.6	11.7	4.8	2.4	3.3	1.6	10.4	5.0
1957	8.5	4.0	13.1	6.3	26.2	12.5	3.8	1.8	2.7	1.3	10.8	5.2
1958	7.4	3.5	11.7	5.0	28.2	13.5	3.4	1.6	2.3	1.0	11.2	5.4
1959	14.1	7.5	16.8	8.7	28.1	13.5	5.7	3.0	3.0	1.5	11.2	5.4
1960	12.0	5.8	15.8	7.7	27.7	13.5	5.1	2.5	2.8	1.4	11.2	5.5
1961	10.4	5.0	15.4	7.3	28.6	13.8	4.4	2.1	2.7	1.3	11.9	5.7
1962	12.7	6.2	17.8	9.3	27.4	13.2	5.0	2.4	3.1	1.6	11.9	5.7
1963	12.4	6.1	16.8	7.7	27.6	13.4	4.8	2.3	3.0	1.4	12.1	5.9
1963 Jan.-Mar.	10.1	4.4	14.4	6.4	23.1	11.1	4.2	1.8	2.8	1.2	11.0	5.3
Apr.-June	12.4	6.2	14.9	6.7	28.1	13.6	4.9	2.4	2.7	1.2	12.0	5.8
1964 Jan.-Mar.	12.1	5.8	16.4	8.6	20.6	10.6	4.7	2.3	3.3	1.7	10.3	5.3
Apr.-June	13.7	7.2	16.7	8.5	27.8	14.3	5.2	2.7	3.2	1.6	11.9	6.1

Computed from data in the Quarterly Financial Report for Manufacturing Corporations 1952-64 issues, published by the Federal Trade Commission and Securities and Exchange Commission.

RETAIL BEEF PRICE SPECIALS ^{1/}

In a cooperative project with 25 retail food chains, the Economic Research Service is collecting and studying retail meat prices. Each week, these firms report regular and special prices for all cuts of meat. The following is a brief description of the patterns of beef specializing observed in this nationwide sample of chain stores. A special is here taken to mean the price reduction for the week's regular price.

Frequency and Depth of Price Specials

While nearly all beef cuts appeared on special during the 1962 to-mid-1964 period observed, the description here is limited to 7 important cuts: Porterhouse, sirloin, and boneless top round steaks; rib, chuck blade, and boneless rump roasts; and ground beef. ^{2/} All of these cuts were specialized frequently. Ground beef appeared on special most often, about 46 percent of the weeks in the reporting stores in 1964. Porterhouse steak was least frequently specialized, about 17 percent of the weeks in the reporting stores. Chuck roast was also a favorite item for specials, showing up in about 34 percent of the weeks. The other 4 cuts were specialized in 20-25 percent of the weeks.

In general, the higher the regular price of a cut, the greater the special both in percentage terms and cents per pound. Chuck roast was the exception--in 1964 chuck specials averaged about 33 percent of the regular price. Porterhouse steak regularly sold for about \$1.20 per retail pound, and porterhouse specials averaged about 30 cents. Ground beef usually sold below 50 cents per pound in the 1962-64 period, and specials ran about 10 cents. Specials on sirloin and round steaks and chuck and rump roast were in the 20-cent range in 1964. Rib roast special prices

averaged 15 cents below regular prices in 1964, a smaller average than expected since this cut usually sells for over 80 cents.

When retail beef prices decline, specials tend to become more frequent but very little larger (table 9). During periods of falling retail prices, specials are not significantly larger in cents per pound than when retail beef prices are steady or rising. They are, however, slightly larger in percentage terms. For example, in 1962 retail beef prices were steady or increasing nearly all the time. In contrast, in 1964, they decreased from January through June. In 1962, the index of frequency of specializing for all beef was 17. By 1964, this index had increased 10 points--more than 60 percent--from 17 to 27. The average price special was only 1 cent per pound greater in 1964 than in 1962, an increase of about 5 percent--from 18 cents to 19 cents. Although the frequency index reflects the direction and intensity of price movements (table 9, column 1 and 2), the index of price reduction shows no definite short-term-trend at all from 1962 to 1964--despite short-term up and down retail price movements. This index may be responding only to the general downward price trend of the period, rather than to the several intermediate movements.

Of the 7 cuts observed here, the cuts most often specialized were the cheaper, more popular ones (table 10). The frequency of specials increased more for these cuts than for other cuts between 1962 and 1964. But the size of their specials increased less than that of the more expensive cuts. For chuck roast, specials were actually smaller in 1964 than in 1962. High-priced cuts--like porterhouse steak and rump roast--were least frequently specialized and the frequency of specials increased less for

^{1/} By William C. Motes and Duane Hacklander, agricultural economists, Marketing Economics Division, Economic Research Service, USDA.

^{2/} All 1964 figures refer to averages from January to August.

Table 9.--Retail beef price specials: Indexes of frequency and price reduction, 1962-64

Direction of retail price movement	Period	Indexes of specializing	
		Frequency <u>1/</u>	Average
		Percent	price reduction Cents
Stable	Jan. - July 1962	18	17
Rising	Aug. - Dec. 1962	16	19
Falling	Jan. - June 1963	24	19
Rising	July - Sept. 1963	21	20
Falling	Oct. 1963 - June 1964	26	19

1/ Total number of specials for the 7 cuts divided by the sum of the store-weeks for each cut.

Table 10.--Retail beef price specials: Indexes of frequency and price reduction, 1962-64 by cuts

Cut	Frequency index			Price reduction index		
	1962	1964	:Increase	1962	1964	:Increase
	Percent	Percent	Percentage Points	Cents	Cents	Cents
<u>Higher priced cuts:</u>						
Porterhouse steak	11	17	6	27	31	4
Boneless rump roast	15	24	9	17	19	2
<u>Lower priced cuts:</u>						
Ground beef	33	46	13	10	11	1
Chuck blade roast	22	34	12	18	17	-1

these cuts than for other cuts between 1962 and 1964. However, the size of their specials increased more.

Specials and Estimates of Beef Prices

Apart from the obvious impact on price relationships among cuts, specials drastically change the quantity patterns of sales among cuts as well. Top round steak makes up about 4 percent of a

Choice grade beef carcass. Retailers who buy beef only in carcass form must sell 24 pounds of other beef cuts and products for every pound of top round steak sold. Normal price relationships tend to be designed with these movement relationships in mind.

Depending on the depth of the special, the tone of the market, and on the behavior of competitors, a special will increase retail sales of beef cut by

varying amounts. In many instances, the movement of cuts on special makes up most--in some cases nearly all--of the beef sales for the week in a given store. When sales of a single cut account for a large part of a store's total beef sales, the average price of beef in that store approaches the price of the cut rather than the average retail price of carcass beef.

ERS published prices of Choice grade beef are average prices that assume that all cuts of a carcass move through retail stores together. Special prices are included when they appear, but are weighted by the importance of each cut in a Choice grade beef carcass. The weight for any cut may understate the importance of that cut in any given store's sales (that week) if a special has sharply increased the sales of that cut. As a result, average beef prices published by ERS accurately represent only the beef that moves to retailers in carcass form. The greater the proportion of beef sold on special by any firm, the less representative these average prices are of that firm's beef sales.

The proportion of Choice grade beef sold each week at special prices in the United States is not known. Efforts are currently underway to obtain sufficient information from food retailers to estimate the size and impact of price specials.

Beef was specialed more frequently in the first 6 months of 1964 when prices were falling than in 1962 when prices were relatively high and rising. But, competition among specials probably prevented the proportion of beef sold on specials from increasing as much as the change in the index of frequency would indicate. Even so, this evidence points to a substantial increase in the movement of beef under special prices in the more recent period, an increase probably great enough to decrease the proportion of the beef movements represented by ERS average prices. ERS is attempting to obtain data from retailers that will enable it to make estimates of this movement, its impact on average prices, and ways it can be reflected in the average price of Choice grade beef.

THE ROLE OF "REGULATED" MOTOR CARRIERS IN HAULING AGRICULTURAL COMMODITIES IN INTERSTATE COMMERCE 1/

Ever since motor carriers began to haul substantial volumes of agricultural commodities, there has been much interest in the relative tonnage moved by the motor carriers as well as railroads, the major volume hauler up to a few years ago. Some studies have explored truck volume and flow patterns, but few have dealt in detail with the so-called "regulated" motor carriers in regard to hauling agricultural products.

The Regulated Motor Carrier Industry

Motor carriers can be classified in 2 ways: "regulated" and "nonregulated."

Regulated motor carriers are those subject to both safety and economic regulation by the Interstate Commerce Commission. These carriers, however, are not subject to economic regulations such as prescribing of routes and the publishing of rates when hauling exempt agricultural commodities, provided they move no non-exempt commodities, such as industrial manufactured products, in the same truck at the same time. These regulated motor carriers are either common carriers, who serve the public generally, or contract carriers, who serve only a few shippers on a selective basis.

The nonregulated motor carriers constitute the largest segment of the trucking industry and handle the bulk of agricultural truck traffic. They are either exempt for-hire or private carriers. The ICC prescribes only safety requirements for these haulers; it does not control such things as rates, entry, and route authority.

Characteristics Of Regulated Motor Carriers

The regulated motor carrier industry is composed mainly of small individual proprietorships and partnerships. Most firms have small territories. Nevertheless, a number of very large concerns cover a broad geographic area. In 1962, 576 Class I common motor carriers of general freight had combined revenues in excess of \$3 billion.

The majority of the commodity hauls by regulated motor carriers are single-line movements of higher-valued, low-weight manufactured products in small lots.

Regulated motor carriers generally find it extremely difficult if not impossible to compete with the exempt for-hire or private motor carriers for most of the available agricultural traffic. 2/

Why Regulated Carriers Haul Agricultural Products

Hauling of agricultural products appeals to the regulated motor carriers because it enables them to (1) help balance their operations, and (2) curtail the effects of seasonality and irregularity of freight movements.

Few motor carriers have such balance of traffic that they do not need to worry about the "backhaul problem." Many operators face this problem daily. A large Georgia carrier, for example, has a very heavy miscellaneous southbound

1/ Prepared by Joseph R. Potter, Jr., agricultural marketing specialist, Marketing Economics Division, Economic Research Service, USDA.

2/ Concrete examples are limited, but three significant studies point up this hypothesis: (1) Interstate Trucking of Fresh and Frozen Poultry Under Agricultural Exemption, USDA, MRR 224, March 1958; (2) Interstate Trucking of Frozen Fruits and Vegetables Under Agricultural Exemption, USDA, MRR 316, March 1959; and (3) Supplement to Interstate Trucking of Frozen Fruits and Vegetables Under Agricultural Exemption, USDA, MRR 316, July 1961.

movement into Florida. His main hope of securing a backhaul rests in moving such agricultural products as water-melons, peanuts, and various fruits and vegetables northbound. The backhaul problem appears to be greatest in the lesser industrialized areas of the United States. High operating costs, large capital investments, and other factors put continued pressure on regulated motor carriers to utilize their equipment as much as possible; and agricultural freight in many cases fills the bill. 3/

A marked seasonality and irregularity exists in the movement of traffic for the United States as a whole. For example, larger-than-normal shipments can be expected from manufacturers in anticipation of the Christmas and Easter seasons. In addition, intensity of traffic fluctuation varies greatly for the individual carriers. Differences also exist in the time of year when their peak traffic occurs. The entire transportation equipment of a company should be adequate to handle the traffic during peak periods. If this were so, a substantial part of the truck fleet would stand idle over a considerable period of time. Interest on investment, depreciation, tied-up capital, and other

fixed costs continue whether the equipment turns a wheel. Thus, fluctuations--like the backhauling problem--cause many regulated carriers to seek out agricultural traffic.

Agricultural Traffic Originated By Class I Motor Carriers

Statistics are limited for measuring the trend of farm-originated tonnage moved on highways. The most accurate figures available on the volume and kinds of agriculture products handled by regulated motor carriers are those published by the Interstate Commerce Commission (table 11). 4/ Since 1956, the Commission, has issued an annual report on motor carrier freight commodity statistics, which indicates the volume of truck-load business done by the regulated motor carriers according to commodity groups and classes. 5/ These figures do not represent totals for the entire regulated motor carrier industry, since they cover only tonnage moved by Class I common and contract carriers. However in terms of revenue, the Class I motor carriers (those earning \$1,000,000 and over) are the most important group of regulated

3/ Faced with what can be termed "fierce" competition and diminishing returns on investment, truckers have been demanding ever-more-versatile equipment from equipment manufacturers in their fight for traffic. A number of significant developments in the trucking equipment field can be expected to contribute to more effective freight movement at less cost through maximum utilization of units. Some of the developments include a convertible trailer that switches from an open-top to a flat-bed unit quickly and easily without use of special tools, a combination refrigerated van and cattle trailer, and a dual-purpose van that hauls and unloads flour, sugar, starch, meal or other bulk materials and then converts to a conventional freight van.

4/ Occasionally a State trucking association will issue information on the amount of agriculture products moving within or from that State by regulated motor carriers. Such a report was published by the Alabama Trucking Association of Montgomery, Alabama, entitled Alabama's Rollin' Lifeline. This report, which covered the 1957 movements of major crops to the 13 most important produce markets, showed regulated carriers hauling 39,600 bushels of snapbeans, 1,620,000 pounds of tomatoes, 172,800 quarts of strawberries, 535,000 watermelons, and 230,000 dozen green corn.

5/ In a 1957 decision in Ex Parte No. 205, Motor Carrier Freight Commodity Statistics, the Interstate Commerce Commission ruled that freight commodity statistics filed by individual motor carriers should not be made public. However, the ICC has recently modified its rules (Docket No. 34515, Commodity Statistics Reporting--Extent and Disclosure) to provide that individual reports of motor carriers be made available for public inspection.

Table 11.--Agricultural traffic originated by Class I common and contract motor carriers of property 1/

Commodity Group	1956		1957		1958		1959		1960		1961 2/	
	Thous. tons	Thous. dol.	Thous. tons	Thous. dol.	Thous. tons	Thous. dol.	Thous. tons	Thous. dol.	Thous. tons	Thous. dol.	Thous. tons	Thous. dol.
Products of agriculture:												
Grains and grain products	499	4,756	603	6,330	606	6,316	686	7,331	857	8,766	783	8,020
Cotton, sugar, and tobacco	265	2,186	326	2,453	537	2,689	696	4,201	724	4,750	728	4,773
Fruits, melons, and beverage crops	1,173	14,579	1,078	14,266	1,273	16,527	1,344	19,649	1,487	24,550	1,518	24,546
Vegetables	891	10,788	1,858	13,518	1,850	12,984	1,031	15,539	1,140	18,265	1,113	19,185
Hay, seeds, and minor field crops	160	1,822	191	2,345	174	2,316	219	2,961	218	3,032	191	2,804
Oilseeds, fats, and oils	371	5,477	423	6,106	414	6,286	430	6,119	406	5,917	407	5,843
Products of agriculture, NOS	196	3,023	174	3,322	216	3,808	183	3,754	180	3,763	184	3,614
Total	3,555	42,631	4,653	48,340	5,070	50,926	4,589	59,554	5,012	69,043	4,924	68,785
Animals and products:												
Animals and products ...	2,506	61,806	2,842	65,891	2,707	66,228	3,112	76,056	3,166	80,765	3,096	81,311
Dairy and poultry products	1,367	18,969	1,357	18,851	1,333	18,387	1,524	19,406	1,646	20,612	1,811	20,954
Fish and oil	67	1,821	63	1,790	94	2,529	125	3,355	119	3,670	159	5,129
Animals and products, NOS	111	1,495	105	1,455	105	1,460	122	1,442	130	1,587	175	2,085
Total	4,051	84,092	4,367	87,987	4,239	88,604	4,883	100,259	5,061	106,634	5,241	109,479
All regulated truckload traffic including agriculture commodities	7,606	126,723	9,020	136,327	9,309	139,530	9,472	159,813	10,073	175,677	10,165	178,264
Agricultural traffic handled by Class I railroads	143,064	1,454,098	146,035	1,575,252	141,311	1,526,536	163,143	1,864,055	168,329	1,925,317	171,555	1,875,703
Agricultural traffic as a percentage of the total regulated motor carrier movement	Pct. 5.3	Pct. 8.7	Pct. 6.2	Pct. 8.7	Pct. 6.6	Pct. 9.1	Pct. 5.8	Pct. 8.7	Pct. 6.0	Pct. 9.1	Pct. 5.9	Pct. 9.5

1/ Includes only products included by ICC in categories entitled, "Products of agriculture" and "Animals and animal products".

2/ Latest year for which data are available. Freight Commodity Statistics, Interstate Commerce Commission.

motor carriers, accounting for more than 60 percent of the total operating revenues. 6/ Also, local tonnage, virtually all of which is handled by truck, is not reflected in these statistics. While Class II and III motor carriers also are required to submit annual reports of a limited nature, the ICC has not compiled these figures in summary form on a year-to-year basis. The figures developed specifically for the Class I motor carriers correspond closely with an estimate given in 1963 by an ICC Commissioner. He stated that agricultural commodities constitute 3.8 percent of the total tonnage hauled by all regulated motor carriers and accounted for roughly 4 percent of their gross revenues. 7/

This estimate and the statistics of table 11 appear to point out that the importance of agricultural traffic to the regulated motor carrier industry in the aggregate is relatively small. At no time over the 6-year period did agricultural commodities account for more than 6.6 percent of the total truck load traffic of Class I carriers nor contribute more than 9.5 percent to their total revenue. Furthermore, the regulated Class I motor carriers' relatively subordinate position is fairly evident when its operations are compared with composite railroad statistics for the same period. (See table 11) While the railroads dominate in the aggregate, the Class I motor carriers are

moving greater quantities of fresh berries, peaches, tomatoes, dried and frozen vegetables, leather, dressed, frozen and live poultry, margarine, eggs, cheese, miscellaneous dairy products, wool and mohair, and seafoods. Generally, these latter products are those of reduced bulk and relatively high-unit value which can support the heavier regulated motor transportation charge. 8/

Regulated Motor Traffic Trends In 7 Perishable Farm Products

From 1956 to 1961 the regulated motor carriers increased their hauling of the more profitable, high-value agricultural traffic by roughly 42 percent--an average annual growth rate of 9.5 percent (table 12). 9/ In 1961, these 7 commodity groups or classes accounted for 43.2 percent of total agricultural tonnage moved by Class I regulated motor carrier, and contributed 53.8 percent to their gross agriculture freight revenues.

Fresh meats, are by far the most important agricultural commodity hauled by these carriers. Of all the freight they moved in 1961, only 6 classes out of a total of 260 separate freight categories contributed more to the Class I carriers' total gross freight revenue. Hauling of fresh meats by regulated Class I motor

6/ Transportation in Agriculture and Business, by David E. Moser and Wesley R. Kriebel, Extension Division, University of Missouri, Columbia, Missouri, Manual 63, 1964.

7/ Effect of Freight Rate Deregulation on Shippers, Carriers and Marketing, by Lawrence K. Walrath, Commissioner, Interstate Commerce Commission, speech of November 21, 1963, before the American Trucking Associations' annual convention in Miami, Florida.

8/ Rail traffic in highly perishable farm products declined sharply during the last 15 years--in some cases almost to the vanishing point. See "The Role of Railroads in Hauling Farm products," The Marketing and Transportation Situation, November 1963.

9/ Recently Division I of the ICC granted 18 regulated motor carriers rights to haul potato products and specified frozen foods from western origins to points in a number of western, midwestern, and southern States. The decision was based on a summary of shippers' evidence which showed that insufficient service was presently available for transportation of these items. "ICC grants 18 Motor Carriers Rights to Haul Potato Products, Frozen Foods," Traffic World, April 25, 1964.

Table 12.--Regulated Class I motor carrier revenue from seven classes of agricultural commodities moved in large volumes 1956-1961

Commodity	Gross freight revenue					
	1956	1957	1958	1959	1960	1961
	Thous. dol.	Thous. dol.	Thous. dol.	Thous. dol.	Thous. dol.	Thous. dol.
Fresh meats	39,238	44,733	44,615	50,774	53,938	56,780
Edible packing-house products	10,675	7,101	7,552	9,160	9,942	8,856
Cooked, cured, dried, and smoked meats	6,859	7,667	7,287	8,067	7,980	7,342
Miscellaneous dairy products	3,289	2,656	4,235	5,667	6,028	6,748
Cheese	4,536	4,568	5,336	5,089	5,978	5,699
Frozen vegetables	2,518	2,044	2,158	4,486	5,749	5,604
Miscellaneous seafood	442	1,644	2,261	3,188	3,523	4,911
Total	67,557	70,413	73,444	86,431	93,138	95,940

Freight Commodity Statistics, Interstate Commerce Commission.

carriers was most significant in the northwestern and midwestern region of the United States. 10/

Regional Traffic And Revenue Trends For Class I Regulated Motor Carriers

The movement of agriculture commodities by regulated motor carriers is of more importance in terms of aggregate revenues in some regions than in others (table 13). On the basis of the 1956-61 data, the 3 regions with the greatest percentage growth in tonnage originated were the Rocky Mountain, Southwestern, and Southern regions. In 1961 these 3 regions accounted for 27 percent of the total U.S. Class I motor carrier agricultural tonnage originated and 36 percent of the gross revenue received (table 13).

Each of these areas, incidentally, has an acute backhauling problem for the regulated carriers.

In terms of tonnage originated in 1961, the Pacific region was the most important, followed by the Southern and Central regions. However, in terms of gross freight revenues from tonnage hauled, the Southern region led with a return of \$35.7 million and with the Central and Midwestern regions trailing considerable. The highly industrialized New England region ranked last in both tonnage and gross revenue in 1961.

Within each of these regions some highly important agriculture movements occurred. The Pacific region, as the largest originator of the "products of agriculture" hauled by regulated motor

10/ The Interstate Commerce Commission divides the U.S. into 9 regions for the reporting of the freight commodity statistics of Class I common and contract carriers: new England Region--Conn., Maine, Mass., N.H., R.I., and Vt.; Middle Atlantic Region--Del., D.C., Md., N.J., N.Y., Pa., and W. Va.; Central Region--Ill., Ind., Mich. (lower peninsula), and Ohio; Southern Region--Ala., Fla., Ga., Ky., Miss., N.C., S.C., Tenn., and Va.; Northwestern Region--Mich. (upper peninsula), Minn., N. Dak., S. Dak., and Wisc.; Midwestern Region--Iowa, Kans., Mo., and Nebr.; Southwestern Region--Ark., La., Okla., and Tex.; Rocky Mountain Region--Col., Idaho, Mont., N. Mex., Utah, and Wyo.; and Pacific Region--Ariz., Calif., Nev., Oreg., and Wash.

Table 13.--Regulated Class I motor carrier revenue and traffic volume, agricultural commodities, by regions, selected years

Region	1956		1959		1961	
	Tonnage	Gross	Tonnage	Gross	Tonnage	Gross
	originated	revenue	originated	revenue	originated	revenue
	Thous. tons	Thous. dol.	Thous. tons	Thous. dol.	Thous. tons	Thous. dol.
New England	202	2,829	220	3,001	225	3,215
Middle Atlantic ..	777	7,302	893	10,692	1,209	13,009
Central	1,223	28,328	1,382	30,091	1,245	26,759
Southern	771	21,615	1,232	30,985	1,430	35,740
Northwestern	697	8,645	862	10,839	1,052	20,442
Midwestern	973	19,123	1,252	24,174	1,178	25,684
Southwestern	369	10,119	659	16,252	790	17,839
Rocky Mountain ...	276	8,070	464	13,408	503	11,196
Pacific	2,318	20,692	2,508	20,371	2,533	24,380
Total	7,606	126,723	9,472	159,813	10,165	178,264

Freight Commodity Statistics, Interstate Commerce Commission.

trucks, had several "firsts." It led the other regions during 1961 in the hauling of wheat, cotton, tomatoes, fresh peaches, and sugar beets.

Individual Motor Carrier Participation In Agriculture Traffic

While the importance of agriculture traffic to the regulated Class I motor carriers is small, to some regulated carriers agriculture freight constitutes a significant share of their total business. The Director of Farm Relations of the American Trucking Association, Inc., recently asserted in an interview with the writer that many carriers of refrigerated products rely heavily upon farm products. For example, 1 carrier in the southwest reported that agricultural commodities make up 20 percent of its total tonnage and 15 percent of its total revenue. It further reported that 75 percent of its return hauls from California to Texas consist of agricultural commodities. A Florida-based carrier reportedly depends almost 100 percent upon agricultural commodities for its return hauls, while more than 10 percent of its outbound (Florida-West) hauls in agricultural freight.

In addition, he stated that several of the largest regular-route common carriers are heavily engaged in transporting agricultural commodities. For instance, 1 of the largest carriers in the Nation hauled over 600 truckloads of carrots from California to the East last year, while another carrier operates a daily livestock transportation service from Billings, Mont., to Chicago, Ill. Others are moving grain in large quantities from the Great Plains into Chicago and the river ports of the Midwest.

Significant Agricultural Movements By Regulated Motor Carriers

Two of the more significant operations of regulated motor carriers in agriculture involve meat and packinghouse products and wool. As indicated earlier, meat is by far the most important for the regulated Class I common and contract motor carriers. In 1961, this segment of the regulated carrier industry alone hauled 2.6 million tons of meats and packinghouse products, which produced about \$73 million in gross revenue to the carriers (table 12). One of the top U.S. packers

reported that 40 percent of its shipments of fresh processed and canned meats move by regulated common carrier truck. 11/ This illustrates the dependence of this particular industry on regulated carriers.

Recently that company, in conjunction with a large Class I regulated motor carrier, 12/, and a steam ship company made a test shipment of 36,000 pounds of packaged frozen pork from its plant at Fremont, Neb., to Hawaii. 13/ This marked the first time that a frozen, perishable product was moved in a sealed shipping container and hauled from an interior point cross-country by truck and the loaded "as is" on a vessel. This self-contained refrigerated trailer unit, which permits the movement of a highly perishable commodity from origin to destination without being disturbed, eliminates several of the major problems which had previously plagued frozen food shippers and handlers. Present rail rates from the Midwest to the West Coast on fresh meats were published because of regulated common carrier motor competition. 14/ Generally speaking, it is highly unusual when regulated common carriers offer enough competition in the hauling of agricultural products to become a rate setter.

The Economic Research Service, in studying the various flow patterns of grease and scoured wools from 14 western States, has found that regulated motor carriers play a highly significant role in the numerous movements of wool throughout that major-producing area. Of the 36 million pounds of grease wool

moving to scouring plants located in the West, motor trucks handled more than 98 percent, with the remainder going by railroads. Of the 98 percent moving via trucks, ICC regulated carriers accounted for 33 percent.

In the study, warehouse operators reported that approximately 22 percent of the wool shipped from their plants to the East was transported by regulated motor carriers. None was moved by non-regulated carriers. The warehousemen preferred the regulated motor carriers because they offered more flexible and reliable service. Because of baling--it increases the density of the wool package--regulated carriers can now compete economically with railroads for longer wool movements, such as those that originate in South Dakota and move to Rhode Island and Virginia.

Prospects For Regulated Carriers As Haulers Of Agricultural Products

Even though national statistics are lacking, available evidence indicates that the hauling of agriculture products, except for a few specific cases, will continue to be minor in the total scheme of the regulated motor carrier industry. However, 3 factors could change this situation. The first would be any change in Government laws, regulations, or policies affecting the operations of regulated motor carriers. Second is the continued growth of the private carriers. While few agree on the exact rate of growth in the use of privately-owned transportation equipment, most conclude that it has been growing more

11/ "Meat Packers Move to Fatten Profits," by Nancy Ford, Traffic Management, December 1963.

12/ This carrier also established another first when it recently announced that 1 of the largest transcontinental shipments of fresh, chilled orange juice ever hauled by tank-trailer was being carried by its bulk commodity division. Sixty-five tanker loads, averaging about 5,000 gallons, were involved in a shipment from Ontario, Calif., to Glenroy, Pa. The receiver bottles the juice and sells it to dairy firms for delivery with their milk orders. Up to this time nearly all fresh orange juice used in the eastern United States had come from Florida. "Fresh Orange Juice Hauled West to East by Ringsby," Traffic World, September 12, 1964.

13/ "Ringsby-Matson Link for Frozen Foods on Interline to Hawaii," Transport Topics, April 27, 1964.

14/ See Fresh Meat, Transcontinental Westbound, 309, ICC 529.

rapidly than other segments of the motor transportation industry since World War II. It has been estimated that 92,000 non-transportation firms do some or all of their own hauling and some do occasional for-hire hauling.^{15/} This is considerably more than the number of regulated carriers now operating in the United States. As a result of this steady increase, greater pressures will be exerted to find new traffic to fill the

void caused by the loss of valuable traffic siphoned off by the private carriers.

A third factor affecting the outlook, is the increase consolidations, mergers, and acquisitions taking place in the motor transportation industry. Greater carrier operating problems, especially "back-hauling," caused by these new realignments will force regulated motor carriers to reevaluate their hauling of farm products.

^{15/} Management of Traffic and Physical Distribution, Charles A. Taff, 1964.

SHIPPING CALIFORNIA-ARIZONA FRESH FRUITS AND VEGETABLES

BY RAIL AND TRUCK 1/

California and Arizona have been the leading U.S. suppliers of most fruits and vegetables for many years--now producing about 38 percent of the Nation's crop. Marketing this large scale output generates a continuous demand for dependable year-around transportation service. Approximately one-third of the area's harvest is carried as fresh produce by rail or truck to interstate destinations. This traffic has averaged around 330,000 carlot equivalents annually in recent years. About 70 percent of the produce consists of lettuce, oranges, potatoes, grapes, and cantaloups. This volume is estimated to be nearly half of the country's fresh fruit and vegetable volume moved in interstate commerce.

In recent years motor carriers have handled an increasing proportion of these interstate shipments. Lower operating expenses enable truckers to set their rates and accessorial charges for the short hauls at levels below those offered by the railroads. Rail carriers have lower expenses for the intermediate- and long-range movements.

Rail's and truck's status as competing interstate carriers of California-Arizona fresh produce has been reported recently in a USDA publication incorporating data gathered in a sample survey of 93 of the area's shipping firms and from other sources. 2/ All rail and truck shipments dispatched interstate by the cooperating business houses amounted to a little over 50 percent of the volume known to have left California and Arizona during the survey period. Highlighted here are some of the report's significant findings. All survey data are for 1960 although trends since 1951 are discussed.

Shifts in Carrier Usage

Approximately 66 percent of the fresh produce dispatched interstate annually in rail and motor carriers from California and Arizona moves to outlets east of the Mississippi River; shipments to the area must travel 1,400 to 3,200 miles (table 14). Rail has been used most frequently for such distances, but between 1951 and 1960, truck shipments of fresh produce to eastern markets climbed from about 1,000 to a little more than 17,000 carlot equivalents. Truckers' share of total traffic moved annually to the East increased from less than 1 percent to about 8 percent. The gain was generated mainly by a sizable step-up in truck shipments to the East South Central and South Atlantic regions.

Furthermore, between 1951 and 1960 produce trucked to the West North Central and West South Central regions more than tripled in volume--increasing from approximately 14,000 to 42,000 carlot equivalents. The 2 regions accounted for nearly 20 percent of the California-Arizona area's interstate shipments. Rail was unchallenged as the major carrier to each region at the close of 1951. By 1960, however, trucks had pulled abreast of rail shipments to the West North Central region--improving their share of the annual traffic from 13 to 50 percent. To the West South Central region, motor carriers replaced rail as the principal hauler by enlarging their traffic share from 28 to 82 percent. Shipments to these regional destinations require hauls of from 600 to 1,800 miles.

Trucks also have acquired additional status for movements to the Western and

1/ Prepared by R. M. Bennett, industry economist, Marketing Economics Division, Economic Research Service, USDA.

2/ Interstate Hauling of California-Arizona Fresh Fruits and Vegetables by Rail and Truck, by R. M. Bennett, U.S. Dept. Agr. MRR 673, Aug. 1964.

Table 14.--Published rail rates and truck rates suggested by truck brokers for shipments of major fresh fruits and vegetables from California to six metropolitan centers; charge per hundred weight; in effect December 31, 1960 1/

Commodity	Denver, Colo.		Dallas, Tex.		Chicago, Ill.		Atlanta, Ga.		Miami, Fla.		New York, N.Y.	
	Truck		Rail		Truck		Rail		Truck		Rail	
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Fruits:												
Apples	1.71	1.77	1.81	2.02	3/2.40	2/2.16	2.60	2/2.31	2.88	2/2.26	3.37	3/7.12
Grapefruit	1.17	2.75	2/1.32	2.95	2.21	2.02	4.62	2.22	6.12	2.02	3/3.33	3/3.33
Grapes	2/1.86	2.00	2/2.16	2.33	2.83	2.06	3.17	2.16	3.67	2.06	3/7.12	3/7.12
Lemons	1.19	2.75	1.34	2.95	2.21	2.04	4.62	2.20	6.12	2.04	3/7.12	3/7.12
Oranges	1.17	2.75	1.32	2.95	2.21	2.02	4.62	2.22	6.12	2.02	3/7.12	3/7.12
Peaches	1.86	2.00	2.16	2.25	3.00	2.06	3.00	2.16	3.50	2.06	3/3.50	3/3.50
Pears	2/1.86	1.91	2/2.16	2.19	2.50	2.06	2.70	2.16	3.00	2.06	3/3.50	3/3.50
Plums	2/1.86	2.20	2/2.16	2.34	2.42	2.06	3.03	2.16	3.33	2.06	3/3.27	3/3.27
Average 4/	1.26	2.35	1.40	2.65	2.30	2.04	3.70	2.18	4.69	2.04	3.44	3.44
Vegetables:												
Cabbage	2/1.45	1.83	2/1.70	1.95	2.30	2/2.13	3/2.29	2/2.19	3/2.75	2.19	2.92	2.92
Carrots	1.45	1.50	1.70	1.90	2.30	2.13	2.60	2.19	2.85	2.19	3.90	3.90
Celery	1.45	1.67	1.70	2.08	2.50	2.13	2.50	2.19	2.83	2.19	3.58	3.58
Cantaloups	1.99	2.27	2.18	2.36	2.50	2.13	3.11	2.19	3.89	2.19	3.56	3.56
Lettuce	1.45	2.25	1.70	1.88	2.50	2.13	3.12	2.19	3.38	2.19	3.75	3.75
Onions (dry)	1.30	1.60	1.36	2.00	2.44	1.89	2.70	1.99	3/3.00	1.96	3/4.00	3/4.00
Potatoes	1.30	2.00	1.36	2.15	2.85	1.89	2.95	1.99	3/3.20	1.96	3.35	3.35
Tomatoes	1.45	2.50	1.70	2.08	3.12	2.13	3.12	2.19	3.75	2.19	4.16	4.16
Watermelons	1.99	2.05	2/2.18	3/2.30	3/2.50	2/2.54	3/2.70	2/2.60	3/3.00	2/2.60	3/3.20	3/3.20
Average 4/	1.38	1.99	1.44	1.99	2.81	2.07	3.09	2.16	3.56	2.16	3.91	3.91
Average 4/	1.37	2.08	1.44	2.16	2.63	2.06	3.31	2.16	3.94	2.12	3.91	3.91

1/ Applicable from origins in central California. Does not include either carriers charge for refrigeration. Reflects rates for 40,000 pound shipments, but is not meant to imply that the designated commodities consistently move at this weight level. The truck rates shown are the lowest quotations among those collected.

2/ No rail receipts in 1960.

3/ No truck receipts in 1960.

4/ Weighted averaged based on the ratio of individual commodity receipts to total receipts per market.

Northwestern regions adjacent to the California-Arizona area. In 1951, trucks were the principal carrier to each region--transporting about 67 percent of the fresh fruit and vegetable traffic. By the end of 1960, motor trucks had further improved their position--attracting around 83 percent of the shipments. The 2 regions absorb about 14 percent of the interstate traffic originating from California and Arizona.

In spite of the motor carrier gains, railroads have held on to the major share of interstate produce shipments leaving California and Arizona. From 1951 to 1960, truck competition reduced rail's traffic share from 87 to 70 percent--a relatively moderate decrease. Rail has consistently offered the lowest transportation rates to eastern markets, that receive about two-thirds of California's and Arizona's interstate shipments of fresh produce.

Rail and Truck Rates

An exact comparison of rail and motor carrier rates is difficult to make. Rail rates on fresh fruits and vegetables moving interstate from California and Arizona are regulated and recorded in published tariffs, but truck charges are unregulated, negotiable, and may fluctuate with changes in demand for service. Despite this, it was possible to construct reasonable estimates of differentials in charges asked by both carriers. The motor carrier rates were obtained from truck brokers in the absence of sufficient quotations on surveyed shippers' copies of truck invoices--virtually all covering sales "free-on-board" at origin. All rates were "suggested" and are not necessarily the actual charges negotiated. The rates actually agreed on may have been slightly above or below the suggested level.

Truck rates per hundredweight exceed rail charges for fruits and vegetables (table 15). The difference varies noticeably by type of produce and market destination. Rail and truck rates climb higher as the length of haul grows longer.

But rail rates tend to level off, whereas those of motor carriers continue to rise. The average rail rate from Central California to New York, a long haul, is 54 percent more than that to Denver, an intermediate haul. By comparison, the average truck rate to New York is 89 percent higher than that to Denver. The rate on a 40,000-pound shipment to the western market averaged 71 cents per hundredweight more by truck than by rail; to the eastern market it was \$1.79 more.

In 1958, the western railroads inaugurated multiple-minimum rates on vegetables and melons (recently extended to deciduous fruit)--providing progressively lower charges as carlot weight increases. The rates per hundredweight for truck shipments remains constant regardless of the total weight in the truck. Rail's innovation has helped to retain its share of fresh produce traffic moving interstate from many California-Arizona shippers. Among 93 shipping firms interviewed in the 2 State area, 83 dealt with commodities applicable for movement under weight incentives. Forty percent felt that the rate structure had not changed rail's share of traffic handled in competition with motor carriers. Thirty-eight percent indicated they were shipping a larger proportion by rail because of the rates; only 2 percent said the proportion had decreased.

Responsibility of Selecting and Arranging Transportation

The choice of rail or truck service may be made by either shipper or receiver. As a general rule, the firm paying the transportation charges or holding title to the cargo during shipment makes the selection. Most of the shippers surveyed in California and Arizona reported that their receivers designated the carrier for a major share of the fresh fruits and vegetables dispatched interstate to them. About 86 percent of the volume shipped was sold "free-on-board" at origin--giving the receiver ownership at shipping point and the recognized right to select

Table 15.--Rail and truck shipments of major fresh fruits and vegetables from California and Arizona to out-of-state destinations, and percentage distribution by mode of transport 1/

Destination area	Shipments (Carlot equivalents)					Percentage distribution							
						Rail				Truck			
	1951	1954	1957	1960		Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
West of Mississippi River:													
North Western	20,445	22,159	19,499	20,897	42.6	33.5	25.7	32.3	57.4	66.5	74.3	67.7	
Western 2/.....	21,305	24,275	24,175	25,395	23.3	13.4	6.7	5.0	76.7	86.6	93.3	95.0	
West North Central	38,606	38,266	36,093	34,169	87.0	76.6	60.3	49.0	13.0	23.4	39.7	51.0	
West South Central	30,665	30,652	33,610	30,438	71.8	53.1	29.0	18.4	28.2	46.9	71.0	81.6	
Total	111,021	115,352	113,377	110,899	62.4	48.8	33.6	27.4	37.6	51.2	66.4	72.6	
East of Mississippi River:													
East North Central	78,959	75,843	76,612	72,798	99.7	99.3	95.2	91.3	.3	.7	4.8	8.7	
East South Central	10,718	10,033	10,682	9,960	97.2	92.6	61.8	51.1	2.8	7.4	38.2	48.9	
North Atlantic	106,051	100,839	102,774	102,867	100.0	99.9	99.0	98.9	3/	.1	1.0	1.1	
South Atlantic	23,774	24,491	26,575	26,535	97.7	96.5	86.4	81.0	2.3	3.5	13.6	19.0	
Total	219,502	211,206	216,643	212,160	99.5	98.9	94.3	91.8	.5	1.1	5.7	8.2	
United States total	330,523	326,558	330,020	323,059	87.0	81.2	73.5	69.7	13.0	18.8	26.5	30.3	
Canada and Mexico	16,020	19,929	24,068	24,969	93.1	86.9	83.0	81.2	6.9	13.1	17.0	18.8	
Total	346,543	346,487	354,088	348,028	87.3	81.5	74.1	70.5	12.7	18.5	25.9	29.5	

the carrier. The other 14 percent, moving in carriers chosen by the shipper, was practically all dispatched unsold--consigned for sale through an agent or sold by the shipper enroute.

The majority of respondent shippers indicated that they ordered all of the rail equipment even when the receivers selected the specific carrier. This procedure simplified shipping routine, was said to promote continued sales contacts with preferred buyers, and was not complicated by rate bargaining that exists with hiring truck service for interstate produce shipments. However, the same shipping firms stipulated that it was more practical for the receivers to complete the arrangements when they selected motor carrier transportation in view of the negotiable rates. Even so, as an accommodation to many receivers, shippers sometimes arrange for a trucker. When this occasion arises, they deal almost exclusively with truck brokers who receive about 10 percent of the transportation cost as payment--usually collected from the trucker. Of the 93 respondent shippers in California and Arizona, 91 made some shipments by truck. Fifty-three of them arranged for some equipment through truck broker firms. They stated that their use of brokers had not changed noticeably in recent years. At least 74 percent of the truck volume originated by the 91 shippers was actually arranged for by their receivers.

Service Features Affecting Choice of Carrier

Speed.--In shipping perishable traffic such as fresh fruits and vegetables, fast service can be very important--and here trucks have a definite advantage. They are more maneuverable, are not subject to switching delays, or to circuitous routing that often impedes rail shipments. Survey firms reported that motor carriers' service generally was 1 or 2 days faster than rail service. Depending upon California-Arizona shipping origins and on destinations in other States, the number of days required to reach various regions

were as follows:

	<u>Rail</u>	<u>Truck</u>
Western and Northwestern States	2-5	1-3
West North Central and West South Central States	3-6	2-4
States east of Mississippi River	4-8	3-6

Motor carriers' speed gives receivers dealing with California-Arizona shippers better protection against quality deterioration--a major risk in handling perishable commodities. It also reduces the shipper's need to carry sizable inventories and can expedite the replenishing of stocks depleted by unexpected demand.

Load capacity.--The maximum cargo potential of rail and truck equipment available to California-Arizona shippers differed substantially. Trucks generally hauled less per load than most rail cars. Replies from the survey firms indicated that some full loads turned over to rail totaled 54,000 pounds per car. However, it was the general consensus that the vast majority of cars in steady supply could handle 40,000 to 44,000 pounds. None of the shippers placed full loads moving by truck at more than 44,000 pounds. Most of the equipment had the capacity to carry 35,000 to 39,000 pounds. The load limits per hauling unit averaged about 14 percent more for rail cars than motor carriers. Rail's larger loads can save California-Arizona shippers and their receivers considerable transportation expense by moving heavier, lower-rated shipments of produce. The lesser capacity of trucks is overcome by their convenience and rapid service in spite of higher rates for many hauls.

Mixed loads.--Thirty-six percent of the traffic given to truckers by the respondent shippers consisted of mixed commodities. Motor carriers are more liberal than the railroads in accepting this type of shipment because most truck shipments are hauled over short and intermediate distances. Commodities requiring different transit temperatures can move together in any combination

under uniform refrigeration without much risk of spoilage when the haul can be completed quickly. The railroads have adopted a much stricter policy toward the commodity composition of mixed loads--a measure that protects the carrier and benefits the shipper and receiver. Since most rail shipments from California and Arizona are long hauls and generally slow moving, only those commodities with similar refrigeration requirements could usually survive the route in mixed loads without considerable deterioration. Rail management specifically identifies the commodities that are acceptable in mixed quantities. Only 12 percent of the interstate traffic given to rail by the interviewed shippers was in mixed loads. Mixed commodity shipments are popular, particularly among the smaller receivers, as a way to diversify their line of fresh produce.

Diversion and reconsignment.--Twenty of the survey firms reported that they very rarely, if ever, dispatched shipments not covered by a sales contract. The other 73 shippers routed a little over 25,000 carlot equivalents unsold. Ninety-seven percent of this traffic was hauled by rail, only 3 percent by motor carriers. The heavy preference for rail service is linked to its feature of diversion or reconsignment. This concession enables shippers to negotiate sales after the fresh produce is enroute. It is offered at no additional cost. Trucks extend the same accommodations, but charge extra. The

charge hedges against possible circuitous routing and the uncertainty of backhauling from final destinations. Eighty-four percent of the rail shipments and 93 percent of the truck shipments dispatched unsold were consigned to agents in many different markets for disposal. The remainder was sold by the shippers while enroute. Diversion and reconsignment privileges provide shipping firms with a unique marketing device.

Prospects

Truckers' improved status as an intermediate- and long-haul carrier has been due almost exclusively to service factors. The charges for such distant movements are substantially above those offered by rail. Yet, motor carrier transportation has become of sufficient value to many fresh produce handlers that they pay a higher price for "over-the-road" shipments. Rail has slowly lost its appeal to dealers by lacking the capacity to adequately duplicate the advantages available through truck usage. Although truck rates are high, truck utility has enabled some produce firms to reduce their business costs through lower inventories and less costly handling. The trend toward increased trucking activity likely will continue; but not so rapidly as in past years unless motor carrier rates can be modified to attract more of the long-haul traffic which still moves mainly by rail.

Supermarkets across the country now stock potato flakes. Today about 10 U.S. companies produce this product, and American production for a recent year was 47 million pounds--worth about \$30 million at retail. Developed at one of the U.S. Department of Agriculture's utilization laboratories, potato flakes were market tested by a market fact-finding team of the Economic Research Service. Tests convinced researchers of a favorable future for flakes and later success in the actual market verified these predictions.

Potato flakes provide a vivid illustration of USDA's new product research in action. Other Department products and processes have been equally successful, but some newly developed items never achieve a place in the market. This article describes research work done at the 4 "labs" and some outstanding achievements.

The Utilization Laboratories

Although USDA has carried on utilization research for nearly a century, it was not until 1938 that work was formalized and coordinated in 4 regional laboratories. Scientists continually describe results, procedures, and work in progress in papers, articles, and books. In addition, about 200 or more patents have been issued to each of the 4 regional labs. These are granted in the name of the inventor but are assigned to the Secretary of Agriculture. Any individual or organization in the U.S. may obtain cost-free licenses to use Department-patented inventions.

Laboratories are located in Peoria, Ill.; New Orleans, La.; Albany, Calif. (near San Francisco); and Philadelphia, Pa. They are called the Northern, South-

ern, Western, and Eastern Regional Research Utilization Laboratories, respectively. As these research organizations grew, field stations were added. For example, the Western Laboratory has field stations in Hawaii, Pasadena, Calif., and in Prosser and Puyallup, Wash. A fifth laboratory is scheduled to be added to the system in Athens, Ga. Each lab has 400 to 500 workers, most of whom are highly trained in the physical sciences.

The labs originally were established to find new ways of utilizing commodities in surplus. The Agricultural Act of 1938 directed that . . . "Research and development shall be devoted to those commodities in which there are regular or seasonal surpluses, and their products and by-products . . ." This work with surplus crops is still a main function, although work has expanded into other areas. During World War II, emphasis was diverted to helping with the war effort; at that time few foods were in surplus. However, the shift to wartime needs did not completely obscure peacetime objectives of the research. For example, work during the emergency was shifted to food preservation, particularly dehydration. Advances made in drying methods became valuable later. Advance of the dehydration industry is in part attributable to the groundwork laid 2 decades ago.

Today's program is broader than that envisioned in the early beginning when work was limited to surplus commodities. Studies now include all farm products. During the late 1950's, pioneering research, long recognized as integral and acutely needed, was initiated as a specific research area. In this research, scientists, relieved from routine assignments, explore the unknown. In the long run, this type of research may shortcut the route to new products.

¹/ Prepared by Kermit Bird, agricultural economist, Marketing Economics Division, Economic Research Service, USDA. Free copies of this article are available from: Division of Information, Office of Management Services, U.S. Department of Agriculture, Washington, D.C., 20250.

The present program, in short, has many objectives. One remains constant-- that of improving the position of agriculture in the U.S. economy by maintaining and expanding markets for products, by better meeting market requirements, and by satisfying human wants. This is being achieved by developing new foods, new processing methods, new fibers, and through basic research.

New Products and Processes of the Utilization Labs

Each laboratory devotes special attention to a group of regionally grown commodities and products. The Northern Laboratory conducts research on corn, wheat, grain sorghum, other grains, soybeans, flaxseed, other oilseed crops, and new crops. Main emphasis is on finding new and improved industrial uses of agricultural products through chemistry. This lab developed a process for the commercial production of penicillin. It also has done work in other health aids such as Vitamins B₂ and B₁₂ and Dextran, a blood plasma extender.

The Southern Laboratory does work on cotton, plant fibers, seed proteins, sugarcane, citrus fruits, oilseeds, naval stores, sweetpotatoes, and southern vegetables. Accomplishments include contributions to the development of wash-and-wear and stretch cotton. Its research helped make cotton fibers resistant to heat, rot, and chemicals. Frozen citrus concentrates were another achievement, as were sweetpotato flakes.

In the Western Lab emphasis is on wool and mohair, wheat, barley, rice, forage crops, fruits and vegetables, poultry and eggs, tree nuts, dry beans and peas, castor seed, sugar beets, and various new crops. The Western Lab has worked on food dehydration. In addition, it has made considerable progress in wool research, including intensive studies involving the relations between structural, chemical, and physical properties. Studies of frozen foods include one development that up-grades quality of

frozen foods in storage and transit through work on time-temperature-tolerance. New types of processing equipment and processing methods have also been developed.

The Eastern division, which covers a 14-State area from Maine to Kentucky, is charged with research on animal products, eastern fruits and vegetables, tobacco, honey, maple products, and new crops. The lab has done investigative work with farm fats and oils. Research there has developed a commercial application in which farm fats become a part of animal feeds. More than 1/2 billion pounds annually of farm fats are now being used in this manner. Another application of farm-produced fats has been in plastics. Potato flakes, mentioned earlier, was an innovation developed at this lab. Major work has been done in recovery of flavors and essences. Explosive-puffing methods for drying fruits and vegetables are future potential contributions to food processing.

The Role of Market Research in Testing New Products

The invention of a new product and process does not complete the evolution of new product development. Before the process or product can achieve its desired place in the market, some market testing is usually necessary. USDA market economists work closely with the laboratory scientists. Economists test products and processes and make recommendations as to their acceptability. In addition, they study the market feasibility for new uses of foods, new crops and new processing methods. These studies bear indirectly on the lab program. Sometimes they suggest areas of needed research for technical workers of the labs. Several examples show the type of research that provides commercial firms with marketing data on new developed products or processes.

White Potato Flakes Market Tests

The study of white potato flakes is a good example of retail test marketing.^{2/}

^{2/} Potato Flakes - A New Form of Dehydrated Mashed Potatoes: Market Position and Consumer Acceptance, in Binghamton, Endicott, and Johnson City, N.Y., by Philip Dwoskin and Milton Jacobs, USDA, MRR-186, Wash., D.C.

In 1957, the tri-city area of Binghamton, Endicott, and Johnson City, N.Y., was selected as a test area. First step was to conduct store audits to establish benchmark sales of all closely competing food products prior to the actual market test. Then, all 41 supermarkets and a sample of smaller stores in the area were stocked with potato flakes. Retail prices were set at a level consistent with those of other processed potato products on the market. The Maine Potato Commission financed the promotion campaign. Store audits and a followup consumer survey were used to determine repeat purchase patterns. On the basis of this test and other indicators, several manufacturers went into production and put a commercial product on the market. The successful introduction of flakes validated findings of the market test--that the product did indeed have a favorable sales potential. Other products, when tested, do not always show such favorable results. These may be dropped or returned to the laboratory for improvement.

Successful introduction of a dehydrated potato product and its widespread acceptance in institutional and household markets had a salutary effect on the potato processing industry. It triggered growth of a large number of other forms of dehydrated potatoes and facilitated growth of other processed forms such as frozen potatoes. In 1958, 18 percent of the total U.S. potato crop went into processing; by 1963, the proportion had risen to 29 percent. Ensuing years saw American potato processing develop from 210 million pounds of finished product to the 1 billion pound industry of today. 3/

Sweetpotato Flakes Market Tests

A different type of market research was employed in regard to sweetpotato flakes. Here the institutional market was the object of investigation. A preliminary objective was to determine extent of prior use of sweetpotatoes and information on how they were used. Managers of restaurants and their chefs were asked to try the instant sweetpotato product under controlled research conditions. Researchers determined how well this product fitted into institutional use. This was from both operational and kitchen viewpoints, as well as customer reactions. In the sweetpotato study, a sample of 88 restaurants in New Orleans and Cleveland was used. The product, necessary recipes, and instructions for preparation were provided. Results showed some restaurant managers thought the new instantized sweetpotato product fitted well into their operations. Customers indicated a liking for the product. 4/ A study of householders' reactions to flakes revealed a similar pattern of favorable results. 5/ To study package needs and future salability of the product, small-scale or micro tests were made in simulated supermarkets. These tests were later followed by an actual sales test in 5 supermarkets. Results showed sweetpotato flakes in glass jars had greater sales appeal than those packed in cans, pouches, or paper cartons. This indicated that good initial sales of sweetpotato flakes in jars could be expected. The initial research program showed the new product appealed to people who were not regular consumers of sweetpotatoes. This conclusion implied that sales of canned

3/ "The Prospective Market for Processed Potatoes," paper presented by Marshall E. Miller to the National Potato Council, Denver, Colo., Nov. 19, 1963. The extraordinary growth of the processed potato industry is described in, Market Potential for Processed Potato Products, by Harry Harp and Denis Dunham, USDA, MRR-505, Oct. 1961, Wash. D.C.

4/ Market Tests of Instant Sweetpotatoes in Selected Institutional Outlets, by Philip B. Dwoskin, O.C. Hester, Howard W. Kerr, and James Bayton, USDA, MRR-580, Jan. 1963, Wash., D.C.

5/ Instant Sweetpotato Flakes, by Dan S. Hollan, USDA, MRR-663, July 1964, Wash. D.C.

and fresh sweetpotatoes would not be lessened by introduction of the new flake product. 6/ Three new plants are now processing sweetpotato flakes for a rapidly growing market.

Dehydrofrozen Apple Market Tests

A third example of market testing research involves a product that is first partly dried and later frozen for storing and shipping. A study of dehydrofrozen apple slices was conducted among bakers during 1960 and 1961. Bakers in Baltimore, Washington, and Philadelphia were given a week's supply of the test product. These bakers then were interviewed to learn of their experiences in preparing and using them in pie baking. Results showed 9 out of 10 pie bakers felt there were advantages in using dehydrofrozen apple slices. Convenience and quality were high on the list. The slices were considered convenient, even though they had to be reconstituted before they were usable in pies. Favorable reactions of bakers cooperating, especially those using large quantities of apple slices, indicated good commercial possibilities for this product. Now 9 companies dehydrofreeze apples for pie baking and other uses. 7/

WURLANized Wool Market Tests

A final example of work carried out under this marketing research program is that currently being done on wool. WURLAN is a process whereby all-wool fabrics are treated to give them more of the desired laundering characteristics. This study was conducted among retail buyers of wool clothes. In total, 40 firms, operating 3,300 retail outlets, were shown samples of WURLANized wool fabrics and similar

samples of untreated wool fabrics. Information obtained concerned sales of presently available machine-washable wool apparel. These retailers described what laundering improvements in wool fabrics they thought were needed. They estimated future sales of wool fabrics if launderability were improved. Retailers said their present machine-washable wool fabrics lacked several characteristics needed for easy laundering and discussed washable wool apparels that had not satisfied market needs. Results showed WURLAN could improve retailers' ability to merchandise many all-wool apparel items. Now introduced into the market, WURLAN gives wool a lasting new market dimension by adding complete launderability to the present desirable properties of natural wool. 8/

These examples of marketing research show how information was gathered from several groups. In the first illustration retail markets and households were investigated. Next, the primary focus was on the institutional outlet. In the study of dehydrofrozen apple slices, bakers were asked to help. In the one concerning WURLANized wool, retail clothing buyers participated. A brief listing of subjects of other studies includes sour cream, cottage cheese, low-fat milk, and both dried and frozen eggs. Other studies have been made of leather, cotton products, frozen bakers items, Kona coffee, freeze-drying, bulgur, dehydrofrozen peas, super-concentrated apple juice, fats and oils, and new crop possibilities.

With a good record for success in predicting acceptability of new products, market potential research is an integral part of the utilization research program. This type of research increases the efficiency of the total laboratory program by

6/ Recent Research on the Market of Sweetpotato Flakes, by Howard W. Kerr, and O. C. Hester, USDA, ERS-194. Reprinted from the Marketing and Transportation Situation, Aug. 1964., Wash. D.C.

7/ Dehydrofrozen Apple Slices: Their Potential in Selected Markets, by Edward J. McGrath, and Howard W. Kerr, USDA, MRR-578, Jan. 1964., Wash., D.C.

8/ "Opportunities for the WURLAN Process in All-Wool Apparel," speech by Larry Clayton to the Technical Wool Conference, San Francisco, Calif., May 13, 1964, Wash., D.C.

some preproduct market studies. By determining whether there is an actual market need, the laboratory scientists are aided in making the best use of their resources.

New Products and Processes

Research with foods, fibers, and other farm products is a continuing process. Some of the newer research of the labs is reported here with no attempt at completeness. Some other new products, not of lab origin, also are reported in the following paragraphs. ^{9/}

Chromatography is a new technique of chemical analysis that makes it now possible to isolate and identify complex chemicals that are flavor components of foods. Using it, the food industry can open the door to secrets of natural flavor. An important benefit will be that food processors may now create and maintain flavor uniformity even though the raw materials were grown, handled, and marketed under a wide variety of conditions.

Enzymes, biochemical catalysts, cause production of specific chemicals necessary in all living matter. They control most life processes. Naturally-occurring enzymes have long been used in processing fruits, making wine and beer, baking bread, and tenderizing meat. As research reveals the nature of how enzymes work, a greater and greater use of them in a wide variety of applications will come. One use of enzymes is in medical diagnosis. Test strips of paper with a small amount of enzyme in it permit a diabetic to test his own sugar level. Housewives have long used natural meat tenderizers, such as papaya juice. A new twist is to treat the cattle with injections of enzymes just prior to slaughter. Not only does this improve good meat, but many lower quality cuts are made more palatable.

Fundamental research on proteins is of far reaching importance. Fabricated protein products, an outgrowth of this new knowledge, are near commercial development stage. Thus far, vegetable proteins isolated from soybeans have been used. Wheat gluten, as demonstrated by the Western Lab, also may be used. The process is to take the protein, put it in fiber form, and spin it into products having the texture of ham, chicken, turkey, etc. Advances in flavor research, combined with the artful use of food-coloring materials, provide an authentic looking, good testing meat substitute.

Atomic radiation is another important basic advance in food processing now approaching an early stage of commercialization. It allows preservation without heat and eventually may mean the consumer will have a food more nearly fresh in terms of color, odor, and flavor. Many problems are still present in spite of recent advances.

Another use of radiation, pasteurization by gamma rays, extends shelf life of foods. This can be of considerable economic importance since food spoilage is costly. Products offering greatest immediate possibilities for shelf-life extension are fish and shellfish.

Nitrogen freezing is a promising low temperature cooling method. Sprayed nitrogen now is used to freeze fruits and vegetables that have not been successfully frozen by the use of present commercial freezing methods. Nitrogen freezing has temperatures ranging downward to minus 320 °F, but it is generally more costly than conventional freezing methods. It requires strict control, particularly regarding the length of freezing time. Minimum time is about 6 minutes for mushrooms. But for some products, such as tomato slices, green beans, melons, mushrooms, strawberries, and seafoods, this freezing method

^{9/} Examples given in this section describing new products and processes were taken from a speech by Philip Dwoskin entitled "Research for Improved Family Living," presented at the annual meeting of the Nebraska Council of Home Extension Clubs, Columbus, Nebr., Sept. 1964, and Burlington, Vt., Oct. 1964, Wash. D.C.

offers improved quality. At least 6 commercial plants in the U.S. now do nitrogen freezing. The outlook is for many more during the next year or two.

Commercialization on a national scale in the near future is the prospect of some exotic subtropical fruits and vegetables in fresh or processed form. Guacamole is a frozen avocado salad made by an old Mexican recipe. Instant Kona coffee, a gourmet coffee from the Kona coast of the island of Hawaii, is another item. The prospect of being able to buy ripe, high quality Hawaii grown papayas, passion fruit, and pineapples is exciting to those who have tasted these fruits fresh in Hawaii. Jet air-freight and new processing and handling methods may make this possible.

Bulgur, in its dried form, has been well received in foreign countries and seems to be catching on in some parts of this country. Current work aims to make it more convenient. Time required to rewet the dried product is reduced. When puffed like breakfast cereals, this wheat is easily reconstituted.

Chemical peeling plus mechanical agitation have been successfully applied to wheat. This process innovation retains most of the nutritive outer layer on wheat grain, yet removes colored bran layers. Left is a white grain with a pleasant flavor. Export and domestic market possibilities could be good for this new product.

Explosion puffing with blueberries, carrots, beets, and apple slices and pieces indicates interesting market possibilities. This is particularly true at the institutional level. Superheated air is exploded through the partly dried pieces creating a porous structure. This opened structure, plus the fact the material is exposed to heat

for only a short time, provides the basis for high quality. Their use as ingredient items in various dry mixes offers a promising potential.

Fibers research has the potential for improving family living. Natural fibers such as wool and cotton have suffered serious losses in markets to man-made fibers. Aided by some excellent research efforts at the Southern and Western Laboratories, natural fibers are regaining some lost markets for some uses. They are becoming more competitive in certain areas. For example, researcher took the "shrink" out of wool by development of a process that coats the fiber with a film and results in a completely launderable wool garment. Researchers put a permanent wrinkle in cotton fiber to give it stretch. They also provide cotton with a memory so that it may regain its normal shape. Scientists are able to impart a luster to a finished cotton garment that may now enable cotton to invade high fashion markets. Similar work is being done on wool, and results may be equally productive. Of considerable interest at present is a flame-proofing treatment developed for a variety of fabrics. Treated fabric chars but does not burn.

A fire retardant paint is the result of fire-proofing research. A new retardant paint using tung oil appears superior to those firm-resistant paints currently on the market. Important civilian and defense advantages are apparent. In World War II, much of the destruction caused from bombings was due to fires. Developed by the Southern Laboratory, this paint actually retards flame support by producing a thick carbonaceous mass that insulates the coated material from further burning. Successes have been rewarding; and continued efforts, anticipated in the future, will bring forth others. Benefactors have been farmers, marketing agencies of all types, and consumers.

* * * * *

Addresses, phone numbers, and a person to contact at each of the 4 laboratories:

Northern Regional Research Laboratory, 1815 N. Univ. St., Peoria, Ill.,
F. R. Senti, Director. Phone: 309 682-5481.

Southern Regional Research Laboratory, 1100 Robert E. Lee Blvd.,
New Orleans, La., C. H. Fisher, Director. Phone: 504 282-1441.

Western Regional Research Laboratory, 800 Buchanan St., Albany,
Calif., M. J. Copley, Director. Phone: 415 LA 5-2244.

Eastern Regional Research Laboratory, 600 E. Mermaid Lane, Phila-
delphia, Pa., P. A. Wells, Director. Phone: 215 CH 7-5800.

For information on market testing, contact Marshall E. Miller, Chief, Market Potentials
Branch, ERS-MED, U.S. Department of Agriculture, Washington, D.C., 20250. Phone:
202 DU 8-4149 or DU 8-3616.

Table 16.--Farm food products: Retail cost and farm value, July-September 1964, April-June 1964, and July-September 1963

Product 1/	Retail unit	Retail cost						Net farm value 2/					
		July-Sept. 1964		Apr.-June 1964		July-Sept. 1963		July-Sept. 1964		Apr.-June 1964		July-Sept. 1963	
		Average		Average		Average		Average		Average		Average	
		1957-59	1957-59	1957-59	1957-59	1957-59	1957-59	1957-59	1957-59	1957-59	1957-59	1957-59	1957-59
		Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
		Dollars	Dollars	Dollars	Dollars	Percent	Percent	Dollars	Dollars	Dollars	Dollars	Percent	Percent
Market basket		1024.06	1004.11	1020.79		2	3/	384.35	360.98	378.44		6	2
Meat products		284.68	273.51	288.23		4	-1	142.46	129.00	150.87		10	-6
Dairy products	Average	178.55	177.98	178.31		3/	3/	78.30	76.09	77.23		3	1
Poultry and eggs	quantities purchased	85.17	80.43	85.07		6	3/	48.50	43.57	48.02		11	1
Bakery and cereal products	per urban wage-earner and	159.85	158.96	159.06		1	3/	33.35	30.26	30.25		10	10
All ingredients		---	---	---		---	---	4/25.78	22.71	22.92		14	12
Grain	clerical-worker	234.74	231.65	228.22		1	3	62.24	62.76	54.32		-1	15
All fruits and vegetables	household in	114.88	110.44	107.38		4	7	36.67	37.10	31.64		-1	16
Fresh fruits	1960-61	49.12	45.96	49.06		7	3/	15.52	16.88	14.42		-8	8
Fresh vegetables		65.76	64.48	58.32		2	13	21.15	20.22	17.22		5	23
Processed fruits and vegetables		119.86	121.21	120.84		-1	-1	25.57	25.66	22.68		3/	13
Fats and oils		34.53	34.62	34.99		3/	-1	11.00	10.55	9.91		4	11
Miscellaneous products		46.54	46.96	46.91		-1	-1	8.50	8.75	7.84		-3	8
		Cents	Cents	Cents	Cents	Percent	Percent	Cents	Cents	Cents	Cents	Percent	Percent
Beef, Choice grade	Pound	78.5	76.0	80.4		3	-2	43.8	40.2	47.8		9	-8
Lamb, Choice grade	Pound	75.7	72.0	71.8		5	5	42.1	40.5	38.0		4	11
Pork	Pound	57.9	54.8	59.4		6	-3	29.2	25.8	30.2		13	-3
Butter	Pound	74.0	73.8	73.5		3/	1	53.2	52.3	52.3		2	2
Cheese, American process	1/2 pound	36.5	36.6	35.8		3/	2	14.8	14.7	14.6		1	1
Ice cream	1/2 gallon	79.9	81.0	82.1		-1	-3	24.5	24.2	23.9		1	3
Milk, evaporated	14 1/2-ounce can	14.8	14.9	14.9		-1	-1	6.2	6.3	6.1		-2	2
Milk, fresh													
Home delivered	1/2 gallon	53.0	52.4	52.5		1	1	21.7	20.8	21.5		4	1
Sold in stores	1/2 gallon	47.6	47.2	47.6		1	0	21.7	20.8	21.5		4	1
Chickens, frying, ready-to-cook ..	Pound	38.2	37.3	38.6		2	-1	20.0	18.7	19.6		7	2
Eggs, Grade A large	Dozen	54.2	49.1	53.4		10	1	33.6	28.7	32.9		17	2
Bread, white													
All ingredients	Pound	20.7	20.6	20.7		3/	0	3.3	2.9	2.9		14	14
Wheat	Pound	---	---	---		---	---	4/2.7	2.3	2.3		17	17
Bread, whole or cracked wheat	Pound	26.3	26.2	---		3/	---	4/2.3	2.0	---		15	---
Cookies, sandwich	Pound	50.8	51.1	51.3		-1	-1	4/4.3	4.1	4.0		5	8
Corn flakes	12 ounces	29.0	28.5	28.1		2	3	2.6	2.6	2.8		0	-7
Flour, white	5 pounds	57.1	56.4	55.6		1	3	4/21.0	17.8	18.0		18	17
Apples	Pound	21.0	19.3	21.4		9	-2	5.3	7.5	5.7		-29	-7
Grapefruit	Each	17.7	15.6	18.2		13	-3	5.3	4.6	5.3		15	0
Lemons	Pound	20.1	20.4	21.7		-1	-7	4.9	4.6	5.8		7	-16
Oranges	Dozen	93.3	83.5	90.3		12	3	31.9	25.9	25.0		23	28
Cabbage	Pound	10.0	10.4	9.0		-4	11	3.2	2.4	2.6		33	23
Carrots	Pound	15.6	14.1	15.1		11	3	4.5	3.1	3.6		45	25
Celery	Pound	15.8	15.2	13.9		4	14	5.1	4.1	4.2		24	21
Cucumbers	Pound	18.3	23.1	---		-21	---	5.6	6.9	---		-19	---
Lettuce	Head	23.2	21.7	24.3		7	-5	7.1	5.2	6.3		37	13
Onions	Pound	11.2	11.3	12.5		-1	-10	3.1	3.0	4.1		3	-24
Peppers, green	Pound	29.7	40.3	---		-26	---	9.3	13.0	---		-28	---
Potatoes	10 pounds	89.1	75.9	66.9		17	33	31.3	31.4	20.4		3/	53
Spinach	10 ounces	29.2	27.2	---		7	---	5.6	4.6	---		22	---
Tomatoes	Pound	28.8	36.0	26.9		-20	7	9.6	11.2	9.1		-14	5
Peaches, canned	No. 2 1/2 can	33.5	34.2	32.8		-2	2	4.9	4.6	5.0		7	-2
Pears, canned	No. 2 1/2 can	50.5	50.1	---		1	---	9.0	10.1	---		-11	---
Beets, canned	No. 303 can	16.6	16.7	---		-1	---	1.1	1.1	---		0	---
Corn, canned	No. 103 can	19.1	18.9	19.1		1	0	2.4	2.4	2.4		0	0
Peas, canned	No. 303 can	22.7	22.8	22.5		3/	1	3.0	2.9	2.9		3	3
Tomatoes, canned	No. 303 can	16.1	15.9	15.4		1	5	2.5	2.5	2.6		0	-4
Orange juice, concentrate, frozen	6-ounce can	30.4	31.5	32.1		-3	-5	15.7	15.8	11.6		-1	35
French fried potatoes, frozen	9 ounces	16.4	16.8	---		-2	---	2.1	2.0	---		5	---
Peas, frozen	10 ounces	21.0	20.9	21.2		3/	-1	3.0	3.0	3.0		0	0
Beans, navy	Pound	16.7	16.7	17.1		0	-2	6.3	6.4	6.4		-2	-2
Margarine	Pound	25.9	26.1	25.9		-1	0	7.2	6.8	6.7		6	7
Peanut butter	12-ounce jar	43.7	43.6	43.5		3/	3/	14.7	15.0	15.0		-2	-2
Salad and cooking oil	Pint	31.7	31.8	---		3/	---	12.0	11.5	---		4	---
Vegetable shortening	3 pounds	77.9	77.9	80.3		0	-3	25.5	24.1	24.0		6	6
Sugar	5 pounds	60.3	65.8	71.1		-8	-15	24.7	24.7	22.8		0	8
Spaghetti with sauce, canned	15 1/2-ounce can	15.1	15.0	---		1	---	1.4	1.6	---		-12	---

1/ Product groups include more items than those listed in this table. For example, in addition to the products listed--Choice beef, lamb, and pork (major products except lard)--the meat products group includes lower grades of beef, the minor edible pork products, and veal.

2/ Gross farm value adjusted to exclude imputed value of byproducts obtained in processing.

3/ Less than 0.5 percent.

4/ The net farm value is based on market price of wheat received by farmers plus 70 cents per bushel, the cost of the wheat certificate to millers. Based on market price alone, it was \$18.33 for the grain in the bakery and cereal products group, 1.8 cents for white bread, and 13.8 cents for flour. Farm value for whole or cracked wheat bread is for grain only; for cookies, it is for all ingredients.

* Not available.

Table 17.--Farm food products: Farm-retail spread and farmer's share of the retail cost, July-September 1964, April-June 1964, and July-September 1963

Product 1/	Retail unit	Farm-retail spread 2/				Percentage change		Farmer's share			
		July-Sept. 1964	Apr.-June 1964	July-Sept. 1963	1957-59 average *	July-Sept. 1964	from- Apr.-June 1964	July-Sept. 1964	Apr.-June 1964	July-Sept. 1963	1957-59 average
		Dollars	Dollars	Dollars	Dollars	Percent	Percent	Percent	Percent	Percent	Percent
Market basket		639.71	643.13	642.35		-1	3/	38	36	37	
Meat products		142.22	144.51	137.36		-2	4	50	47	52	
Dairy products	Average quantities purchased per urban wage-earner and	100.25	101.89	101.08		-2	-1	44	43	43	
Poultry and eggs	household	36.67	36.86	37.05		-1	-1	57	54	56	
Bakery and cereal products											
All ingredients	clerkal-	126.50	128.70	128.81		-2	-2	21	19	19	
Grain	worker	---	---	---		---	---	4/16	14	14	
All fruits and vegetables	household	172.50	168.89	173.90		2	-1	27	27	24	
Fresh fruits and vegetables ..	in	78.21	73.34	75.74		7	3	32	34	29	
Fresh fruits	1960-61	33.60	29.08	34.64		16	-3	32	37	29	
Fresh vegetables		44.61	44.26	41.10		1	9	32	31	30	
Processed fruits and vegetables		94.29	95.55	98.16		-1	-4	21	21	19	
Fats and oils		23.53	24.07	25.08		-2	-6	32	30	28	
Miscellaneous products		38.04	38.21	39.07		3/	-3	18	19	17	
		Cents	Cents	Cents	Cents	Percent	Percent	Percent	Percent	Percent	Percent
Beef, Choice grade	Pound	34.7	35.8	32.6		-3	6	56	53	59	
Lamb, Choice grade	Pound	33.6	31.5	33.8		7	-1	56	56	53	
Pork	Pound	28.7	29.0	29.2		-1	-2	50	47	51	
Butter	Pound	20.8	21.5	21.2		-3	-2	72	71	71	
Cheese, American process	$\frac{1}{2}$ pound	21.7	21.9	21.2		-1	2	41	40	41	
Ice cream	$\frac{1}{2}$ gallon	55.4	56.8	58.2		-2	-5	31	30	29	
Milk, evaporated	$1\frac{1}{2}$ -ounce can	8.6	8.6	8.8		0	-2	42	42	41	
Milk, fresh											
Home delivered	$\frac{1}{2}$ gallon	31.3	31.6	31.0		-1	1	41	40	41	
Sold in stores	$\frac{1}{2}$ gallon	25.9	26.4	26.1		-2	-1	46	44	45	
Chickens, frying, ready-to-cook ..	Pound	18.2	18.6	19.0		-2	-4	52	50	51	
Eggs, Grade A large	Dozen	20.6	20.4	20.5		1	3/	62	58	62	
Bread, white											
All ingredients	Pound	17.4	17.7	17.8		-2	-2	16	14	14	
Wheat	Pound	---	---	---		---	---	4/13	11	11	
Bread, whole or cracked wheat	Pound	24.0	24.2	---		-1	---	5/9	8	---	
Cookies, sandwich	Pound	46.5	47.0	47.3		-1	-2	4/8	8	8	
Corn flakes	12 ounces	26.4	25.9	25.3		2	4	9	9	10	
Flour, white	5 pounds	36.1	38.6	37.6		-6	-4	4/37	32	32	
Apples	Pound	15.7	11.8	15.7		33	0	25	39	27	
Grapefruit	Each	12.4	11.0	12.9		13	-4	30	29	29	
Lemons	Pound	15.2	15.8	15.9		-4	-4	24	23	27	
Oranges	Dozen	61.4	57.6	65.3		7	-6	34	31	28	
Cabbage	Pound	6.8	8.0	6.4		-15	6	32	23	29	
Carrots	Pound	11.1	11.0	11.5		1	-3	29	22	24	
Celery	Pound	10.7	11.1	9.7		-4	10	32	27	30	
Cucumbers	Pound	12.7	16.2	---		-22	---	31	30	---	
Lettuce	Head	16.1	16.5	18.0		-2	-11	31	24	26	
Onions	Pound	8.1	8.3	8.4		-2	-4	28	27	33	
Peppers, green	Pound	20.4	27.3	---		-25	---	31	32	---	
Potatoes	10 pounds	57.8	44.5	46.5		30	24	35	41	30	
Spinach	10 ounces	23.6	22.6	---		4	---	19	17	---	
Tomatoes	Pound	19.2	24.8	17.8		-23	8	33	31	34	
Peaches, canned	No. 2 $\frac{1}{2}$ can	28.6	29.6	27.8		-3	3	15	13	15	
Pears, canned	No. 2 $\frac{1}{2}$ can	41.5	40.0	---		4	---	18	20	---	
Beets, canned	No. 303 can	15.5	15.6	---		-1	---	7	7	---	
Corn, canned	No. 303 can	16.7	16.5	16.7		1	0	13	13	13	
Peas, canned	No. 303 can	19.7	19.9	19.6		-1	1	13	13	13	
Tomatoes, canned	No. 303 can	13.6	13.4	12.8		1	6	16	16	17	
Orange juice, concentrate, frozen	6-ounce can	14.7	15.7	20.5		-6	-28	52	50	36	
French fried potatoes, frozen	9 ounces	14.3	14.8	---		-3	---	13	12	---	
Peas, frozen	10 ounces	18.0	17.9	18.2		1	-1	14	14	14	
Beans, navy	Pound	10.4	10.3	10.7		1	-3	38	38	37	
Margarine	Pound	18.7	19.3	19.2		-3	-3	28	26	26	
Peanut butter	12-ounce jar	29.0	28.6	28.5		1	2	34	34	34	
Salad and cooking oil	Pint	19.7	20.3	---		-3	---	38	36	---	
Vegetable shortening	3 pounds	52.4	53.8	56.3		-3	-7	33	31	30	
Sugar	5 pounds	35.6	41.1	48.3		-13	-26	41	38	32	
Spaghetti with sauce, canned	15 $\frac{1}{2}$ -ounce can	13.7	13.4	---		2	---	9	11	---	

1/ Product groups include more items than those listed in this table. For example, in addition to the products listed--Choice beef, lamb, and pork (major products except lard)--the meat products group includes lower grades of beef, the minor edible pork products, and veal.

2/ The farm-retail spread is the difference between the retail cost and the net farm value shown in table on opposite page.

3/ Less than 0.5 percent.

4/ The farmer's share is based on market price of wheat received by farmers plus 70 cents per bushel, the value of domestic marketing certificate received by farmers complying fully with the Federal Wheat Program. The farmer's share based on market price alone was 11 percent for grain in the bakery and cereal products group, 9 percent for white bread, 7 percent for cookies, and 24 percent for flour.

5/ Based on farm value of wheat only.

* Not available.

Table 18.--Farm food products: Retail cost, farm value of equivalent quantities sold by producers, byproduct allowance, farm-retail spread, and farmer's share of retail cost, January-March 1964

Product ^{1/}	Farm equivalent	Retail unit	Retail cost	Gross farm value	Byproduct allowance	Net farm value	Farm-retail spread	Farmer's share
			Dollars	Dollars	Dollars	Dollars	Dollars	Percent
Market basket			1,010.77	---	---	372.26	638.51	37
Meat products			278.52	---	---	134.22	144.30	48
Dairy products			179.30	---	---	79.32	99.98	44
Poultry and eggs		Average quantities purchased	86.35	---	---	49.44	36.91	57
Bakery and cereal products	Farm produce equivalent to products bought per urban wage-earner and clerical-worker household in 1960-61	per urban wage-earner	158.60	---	---	32.16	126.44	20
All ingredients		and	---	29.37	4.82	24.55	---	15
Grain		clerical-worker	225.48	---	---	57.83	167.65	26
All fruits and vegetables		household	104.07	---	---	34.75	69.32	33
Fresh fruits and vegetables		in	39.82	---	---	13.55	26.27	34
Fresh fruits		1960-61	64.25	---	---	21.20	43.05	33
Fresh vegetables								
Processed fruits and vegetables			121.41	---	---	23.08	98.33	19
Fats and oils			34.88	---	---	10.43	24.45	30
Miscellaneous products			47.64	---	---	8.86	38.78	19
			Cents	Cents	Cents	Cents	Cents	Percent
Beef, Choice grade	2.25 lb. Choice grade cattle	Pound	77.5	47.1	4.1	43.0	34.5	55
Lamb, Choice grade	2.35 lb. lamb	Pound	71.9	44.0	7.0	37.0	34.9	51
Pork	2.00 lb. hogs	Pound	55.6	28.8	3.4	25.4	30.2	46
Butter	Cream and whole milk	Pound	73.8	---	---	52.2	21.6	71
Cheese, American process	Milk for American cheese	$\frac{1}{2}$ pound	36.6	---	---	15.2	21.4	42
Ice cream	Cream, milk, and sugar	$\frac{1}{2}$ gallon	81.4	---	---	24.6	56.8	30
Milk, evaporated	Milk for evaporating	14 $\frac{1}{2}$ -ounce can	14.9	---	---	6.5	8.4	44
Milk, fresh								
Home delivered	4.39 lb. Class I milk	$\frac{1}{2}$ gallon	52.9	---	---	22.1	30.8	42
Sold in stores	4.39 lb. Class I milk	$\frac{1}{2}$ gallon	47.8	---	---	22.1	25.7	46
Chickens, frying, ready-to-cook	1.37 lb. broiler	Pound	37.5	---	---	19.6	17.9	52
Eggs, Grade A large	1.03 dozen	Dozen	56.9	---	---	35.4	21.5	62
Bread, white								
All ingredients	Wheat and other ingredients	Pound	20.6	---	---	3.1	17.5	15
Wheat .....	.877 lb. wheat	Pound	---	2.8	.3	2.5	---	12
Bread, whole or cracked wheat .....	.708 lb. wheat	Pound	26.1	2/2.3	2/.1	2/2.2	23.9	2/8
Cookies, sandwich	Wheat and other ingredients	Pound	51.2	---	---	4.2	47.0	8
Corn flakes	2.87 lb. yellow corn	12 ounces	28.1	5.7	3.2	2.5	25.6	9
Flour, white	6.8 lb. wheat	5 pounds	55.8	22.2	2.5	19.7	36.1	35
Apples	1.04 lb. apples	Pound	15.9	---	---	5.0	10.9	31
Grapefruit	1.03 grapefruit	Each	13.2	---	---	3.6	9.6	27
Lemons	1.04 lb. lemons	Pound	21.0	---	---	4.9	16.1	23
Oranges	1.03 doz. oranges	Dozen	78.3	---	---	25.6	52.7	33
Cabbage	1.08 lb. cabbage	Pound	10.5	---	---	2.3	8.2	22
Carrots	1.03 lb. carrots	Pound	14.7	---	---	2.3	12.4	16
Celery	1.08 lb. celery	Pound	16.5	---	---	6.1	10.4	37
Cucumbers	1.09 lb. cucumbers	Pound	30.7	---	---	15.7	15.0	51
Lettuce	1.88 lb. lettuce	Head	28.2	---	---	11.9	16.3	42
Onions	1.06 lb. onions	Pound	11.5	---	---	3.5	8.0	30
Peppers, green	1.09 lb. peppers	Pound	37.0	---	---	13.6	23.3	37
Potatoes	10.42 lb. potatoes	10 pounds	60.8	---	---	16.5	44.3	27
Spinach .....	.71 lb. spinach	10 ounces	27.4	---	---	5.4	22.0	20
Tomatoes	1.18 lb. tomatoes	Pound	35.9	---	---	13.3	22.6	37
Peaches, canned	1.60 lb. Calif. cling peaches	No. 2 $\frac{1}{2}$ can	33.2	---	---	4.6	28.6	14
Pears, canned	1.85 lb. pears for canning	No. 2 $\frac{1}{2}$ can	48.4	---	---	10.1	38.3	21
Beets, canned	1.24 lb. beets for canning	No. 303 can	16.9	---	---	1.1	15.8	7
Corn, canned	2.495 lb. sweet corn	No. 303 can	18.9	---	---	2.4	16.5	13
Peas, canned .....	.69 lb. peas for canning	No. 303 can	22.7	---	---	2.9	19.8	13
Tomatoes, canned	1.84 lb. tomatoes for canning	No. 303 can	15.9	---	---	2.5	13.4	16
Orange juice, concentrate, frozen ..	2.83 lb. oranges	6-ounce can	32.4	---	---	12.3	20.1	38
French fried potatoes, frozen	1.38 lb. potatoes	9 ounces	17.0	---	---	1.7	15.3	10
Peas, frozen .....	.70 lb. peas for freezing	10 ounces	21.0	---	---	3.0	18.0	14
Beans, navy	1.00 lb. Mich. dry beans	Pound	16.7	---	---	6.4	10.3	38
Margarine	Soybeans, cottonseed, and milk	Pound	26.0	---	---	6.7	19.3	26
Peanut butter	1.33 lb. peanuts	12-ounce jar	43.6	---	---	15.2	28.4	35
Salad and cooking oil	Soybeans, cottonseed, and corn	Pint	32.3	---	---	11.1	21.2	34
Vegetable shortening	Soybeans and cottonseed	3 pounds	79.7	---	---	23.8	55.9	30
Sugar	Sugar beets and cane	5 pounds	71.4	26.3	1.6	3/24.7	3/46.7	3/35
Spaghetti with sauce, canned	Wheat, tomatoes, cheese, sugar	15 $\frac{1}{2}$ -ounce can	15.0	---	---	1.8	13.2	12

^{1/} Product groups include more items than those listed in this table. For example, in addition to the products listed--Choice beef, lamb, and pork (major products except lard)--the meat products group includes lower grades of beef, the minor edible pork products, and veal.

^{2/} For wheat only.

^{3/} Net farm value adjusted for Government payments to producers was 28.7 cents, farm-retail spread adjusted for Government processor tax was 44.0 cents, and farmer's share of retail cost based on adjusted farm value was 40 percent.

Table 19.--Farm food products: Retail cost, farm value of equivalent quantities sold by producers, byproduct allowance, farm-retail spread, and farmer's share of retail cost, April-June 1964

Product 1/	Farm equivalent	Retail unit	Retail cost	Gross farm value	Byproduct allowance	Net farm value	Farm-retail spread	Farmer's share
			Dollars	Dollars	Dollars	Dollars	Dollars	Percent
Market basket			1,004.11	---	---	360.98	643.13	36
Meat products			273.51	---	---	129.00	144.51	47
Dairy products			177.98	---	---	76.09	101.89	43
Poultry and eggs		Average quantities purchased per urban wage-earner and clerical-worker household in 1960-61	80.43	---	---	43.57	36.86	54
Bakery and cereal products	Farm produce equivalent to products bought per urban wage-earner and clerical-worker household in 1960-61		158.96	---	---	30.26	128.70	19
All ingredients			---	27.15	4.44	22.71	---	14
Grain			231.65	---	---	62.76	168.89	27
All fruits and vegetables			110.44	---	---	37.10	73.34	34
Fresh fruits and vegetables			45.96	---	---	16.88	29.08	37
Fresh fruits			64.43	---	---	20.22	44.26	31
Fresh vegetables			121.21	---	---	25.66	95.55	21
Processed fruits and vegetables			34.62	---	---	10.55	24.07	30
Fats and oils			46.96	---	---	8.75	38.21	19
Miscellaneous products								
			Cents	Cents	Cents	Cents	Cents	Percent
Beef, Choice grade	2.25 lb. Choice grade cattle	Pound	76.0	44.5	4.3	40.2	35.8	53
Lamb, Choice grade	2.33 lb. lamb	Pound	72.0	47.8	7.3	40.5	31.5	56
Pork	2.00 lb. hogs	Pound	54.8	29.7	3.9	25.8	29.0	47
Butter	Cream and whole milk	Pound	73.8	---	---	52.3	21.5	71
Cheese, American process	Milk for American cheese	$\frac{1}{2}$ pound	36.6	---	---	14.7	21.9	40
Ice cream	Cream, milk, and sugar	$\frac{1}{2}$ gallon	81.0	---	---	24.2	56.8	30
Milk, evaporated	Milk for evaporating	14 $\frac{1}{2}$ -ounce can	14.9	---	---	6.3	8.6	42
Milk, fresh								
Home delivered	4.39 lb. Class I milk	$\frac{1}{2}$ gallon	52.4	---	---	20.8	31.6	40
Sold in stores	4.39 lb. Class I milk	$\frac{1}{2}$ gallon	47.2	---	---	20.8	26.4	44
Chickens, frying, ready-to-cook	1.37 lb. broiler	Pound	37.3	---	---	18.7	18.6	50
Eggs, Grade A large	1.03 dozen	Dozen	49.1	---	---	28.7	20.4	58
Bread, white								
All ingredients	Wheat and other ingredients	Pound	20.6	---	---	2.9	17.7	14
Wheat .....	.877 lb. wheat	Pound	---	2.5	.2	2.3	---	11
Bread, whole or cracked wheat .....	.708 lb. wheat	Pound	26.2	2/2.1	2/.1	2/2.0	24.2	2/8
Cookies, sandwich	Wheat and other ingredients	Pound	51.1	---	---	4.1	47.0	8
Corn flakes	2.87 lb. yellow corn	12 ounces	28.5	6.0	3.4	2.6	25.9	9
Flour, white	6.8 lb. wheat	5 pounds	56.4	19.8	2.0	17.8	38.6	32
Apples	1.04 lb. apples	Pound	19.3	---	---	7.5	11.8	39
Grapefruit	1.03 grapefruit	Each	15.6	---	---	4.6	11.0	29
Lemons	1.04 lb. lemons	Pound	20.4	---	---	4.6	15.8	23
Oranges	1.03 doz. oranges	Dozen	83.5	---	---	25.9	57.6	31
Cabbage	1.08 lb. cabbage	Pound	10.4	---	---	2.4	8.0	23
Carrots	1.03 lb. carrots	Pound	14.1	---	---	3.1	11.0	22
Celery	1.08 lb. celery	Pound	15.2	---	---	4.1	11.1	27
Cucumbers	1.09 lb. cucumbers	Pound	23.1	---	---	6.9	16.2	30
Lettuce	1.88 lb. lettuce	Head	21.7	---	---	5.2	16.5	24
Onions	1.06 lb. onions	Pound	11.3	---	---	3.0	8.3	27
Peppers, green	1.09 lb. peppers	Pound	40.3	---	---	13.0	27.3	32
Potatoes	10.42 lb. potatoes	10 pounds	75.9	---	---	31.4	44.5	41
Spinach .....	.71 lb. spinach	10 ounces	27.2	---	---	4.6	22.6	17
Tomatoes	1.18 lb. tomatoes	Pound	36.0	---	---	11.2	24.8	31
Peaches, canned	1.60 lb. Calif. cling peaches	No. 2 $\frac{1}{2}$ can	34.2	---	---	4.6	29.6	13
Pears, canned	1.85 lb. pears for canning	No. 2 $\frac{1}{2}$ can	50.1	---	---	10.1	40.0	20
Beets, canned	1.24 lb. beets for canning	No. 303 can	16.7	---	---	1.1	15.6	7
Corn, canned	2.495 lb. sweet corn	No. 303 can	18.9	---	---	2.4	16.5	13
Peas, canned .....	.69 lb. peas for canning	No. 303 can	22.8	---	---	2.9	19.9	13
Tomatoes, canned	1.84 lb. tomatoes for canning	No. 303 can	15.9	---	---	2.5	13.4	16
Orange juice, concentrate, frozen ..	2.72 lb. oranges	6-ounce can	31.5	---	---	15.8	15.7	50
French fried potatoes, frozen	1.38 lb. potatoes	9 ounces	16.8	---	---	2.0	14.8	12
Peas, frozen .....	.70 lb. peas for freezing	10 ounces	20.9	---	---	3.0	17.9	14
Beans, navy	1.00 lb. Mich. dry beans	Pound	16.7	---	---	6.4	10.3	38
Margarine	Soybeans, cottonseed, and milk	Pound	26.1	---	---	6.8	19.3	26
Peanut butter	1.33 lb. peanuts	12-ounce jar	43.6	---	---	15.0	28.6	34
Salad and cooking oil	Soybeans, cottonseed, and corn	Pint	31.8	---	---	11.5	20.3	36
Vegetable shortening	Soybeans and cottonseed	3 pounds	77.9	---	---	24.1	53.8	31
Sugar	Sugar beets and cane	5 pounds	65.8	26.3	1.6	3/24.7	3/41.1	3/38
Spaghetti with sauce, canned	Wheat, tomatoes, cheese, sugar	15 $\frac{1}{2}$ -ounce can	15.0	---	---	1.6	13.4	11

1/ Product groups include more items than those listed in this table. For example, in addition to the products listed--Choice beef, lamb, and pork (major products except lard)--the meat products group includes lower grades of beef, the minor edible pork products, and veal.

2/ For wheat only.

3/ Net farm value adjusted for Government payments to producers was 28.7 cents, farm-retail spread adjusted for Government processor tax was 38.4 cents, and farmer's share of retail cost based on adjusted farm value was 44 percent.

Table 20.--Farm food products: Retail cost, farm value of equivalent quantities sold by producers, byproduct allowance, farm-retail spread, and farmer's share of retail cost, July-September, 1964

Product 1/	Farm equivalent	Retail unit	Retail cost	Gross farm value	Byproduct allowance	Net farm value	Farm-retail spread	Farmer's share
			Dollars	Dollars	Dollars	Dollars	Dollars	Percent
Market basket			1024.06	---	---	348.35	639.71	38
Meat products			284.68	---	---	142.46	142.22	50
Dairy products			178.55	---	---	78.30	100.25	44
Poultry and eggs			85.17	---	---	48.50	36.67	57
Bakery and cereal products	Farm produce equivalent to products bought per urban wage-earner and clerical-worker household in 1960-61	Average quantities purchased per urban wage-earner and clerical-worker household in 1960-61	159.85	---	---	33.35	126.50	21
All ingredients		per urban wage-earner and clerical-worker household in 1960-61	---	30.41	4.63	25.78	---	16
Grain 2/			234.74	---	---	62.24	172.50	27
All fruits and vegetables			114.88	---	---	36.67	78.21	32
Fresh fruits and vegetables			49.12	---	---	15.52	33.60	32
Fresh fruits			65.76	---	---	21.15	44.61	32
Fresh vegetables			119.86	---	---	25.57	94.29	21
Processed fruits and vegetables			34.53	---	---	11.00	23.53	32
Fats and oils			46.54	---	---	8.50	38.04	18
Miscellaneous products								
			Cents	Cents	Cents	Cents	Cents	Percent
Beef, Choice grade	2.25 lb. Choice grade cattle	Pound	78.5	48.1	4.3	43.8	34.7	56
Lamb, Choice grade	2.37 lb. lamb	Pound	75.7	48.7	6.6	42.1	33.6	56
Pork	2.00 lb. hogs	Pound	57.9	32.8	3.6	29.2	28.7	50
Butter	Cream and whole milk	Pound	74.0	---	---	53.2	20.8	72
Cheese, American process	Milk for American cheese	$\frac{1}{2}$ pound	36.5	---	---	14.8	21.7	41
Ice cream	Cream, milk, and sugar	$\frac{1}{2}$ gallon	79.9	---	---	24.5	55.4	31
Milk, evaporated	Milk for evaporating	$14\frac{1}{2}$ -ounce can	14.8	---	---	6.2	8.6	42
Milk, fresh								
Home delivered	4.39 lb. Class I milk	$\frac{1}{2}$ gallon	53.0	---	---	21.7	31.3	41
Sold in stores	4.39 lb. Class I milk	$\frac{1}{2}$ gallon	47.6	---	---	21.7	25.9	46
Chickens, frying, ready-to-cook	1.37 lb. broiler	Pound	38.2	---	---	20.0	18.2	52
Eggs, Grade A large	1.03 dozen	Dozen	54.2	---	---	33.6	20.6	62
Bread, white								
All ingredients	Wheat and other ingredients	Pound	20.7	---	---	3.3	17.4	16
Wheat .....	.877 lb. wheat	Pound	---	3.0	.3	2.7	---	13
Bread, whole or cracked wheat .....	.708 lb. wheat	Pound	26.3	3/2.4	3/.1	3/2.3	24.0	3/9
Cookies, sandwich	Wheat and other ingredients	Pound	50.8	---	---	4.3	46.5	8
Corn flakes	2.87 lb. yellow corn	12 ounces	29.0	4/5.9	4/3.3	4/2.6	26.4	4/9
Flour, white	6.8 lb. wheat	5 pounds	57.1	23.2	2.2	21.0	36.1	37
Apples	1.04 lb. apples	Pound	21.0	---	---	5.3	15.7	25
Grapefruit	1.03 grapefruit	Each	17.7	---	---	5.3	12.4	30
Lemons	1.04 lb. lemons	Pound	20.1	---	---	4.9	15.2	24
Oranges	1.03 doz. oranges	Dozen	93.3	---	---	31.9	61.4	34
Cabbage	1.08 lb. cabbage	Pound	10.0	---	---	3.2	6.8	32
Carrots	1.03 lb. carrots	Pound	15.6	---	---	4.5	11.1	29
Celery	1.08 lb. celery	Pound	15.8	---	---	5.1	10.7	32
Cucumbers	1.09 lb. cucumbers	Pound	18.3	---	---	5.6	12.7	31
Lettuce	1.88 lb. lettuce	Head	23.2	---	---	7.1	16.1	31
Onions	1.06 lb. onions	Pound	11.2	---	---	3.1	8.1	28
Peppers, green	1.09 lb. peppers	Pound	29.7	---	---	9.3	20.4	31
Potatoes	10.42 lb. potatoes	10 pounds	89.1	---	---	31.3	57.8	35
Spinach .....	.71 lb. spinach	10 ounces	29.2	---	---	5.6	23.6	19
Tomatoes	1.18 lb. tomatoes	Pound	28.8	---	---	9.6	19.2	33
Peaches, canned	1.60 lb. Calif. cling peaches	No. 2 $\frac{1}{2}$ can	33.5	---	---	4.9	28.6	15
Pears, canned	1.85 lb. pears for canning	No. 2 $\frac{1}{2}$ can	50.5	---	---	9.0	41.5	18
Beets, canned	1.24 lb. beets for canning	No. 303 can	16.6	---	---	1.1	15.5	7
Corn, canned	2.495 lb. sweet corn	No. 303 can	19.1	---	---	2.4	16.7	13
Peas, canned .....	.69 lb. peas for canning	No. 303 can	22.7	---	---	3.0	19.7	13
Tomatoes, canned	1.84 lb. tomatoes for canning	No. 303 can	16.1	---	---	2.5	13.6	16
Orange juice, concentrate, frozen ..	2.67 lb. oranges	6-ounce can	30.4	---	---	15.7	14.7	52
French fried potatoes, frozen	1.38 lb. potatoes	9 ounces	16.4	---	---	2.1	14.3	13
Peas, frozen .....	.70 lb. peas for freezing	10 ounces	21.0	---	---	3.0	18.0	14
Beans, navy	1.00 lb. Mich. dry beans	Pound	16.7	---	---	6.3	10.4	38
Margarine	Soybeans, cottonseed, and milk	Pound	25.9	---	---	7.2	18.7	28
Peanut butter	1.33 lb. peanuts	12-ounce jar	43.7	---	---	14.7	29.0	34
Salad and cooking oil	Soybeans, cottonseed, and corn	Pint	31.7	---	---	12.0	19.7	38
Vegetable shortening	Soybeans and cottonseed	3 pounds	77.9	---	---	25.5	52.4	33
Sugar	Sugar beets and cane	5 pounds	60.3	26.3	1.6	5/24.7	5/35.6	5/41
Spaghetti with sauce, canned	Wheat, tomatoes, cheese, sugar	15 $\frac{1}{2}$ -ounce can	15.1	---	---	1.4	13.7	9

1/ Product groups include more items than those listed in this table. For example, in addition to the products listed--Choice beef, lamb, and pork (major products except lard)--the meat products group includes lower grades of beef, the minor edible pork products, and veal.

2/ For the bakery and cereal products group and the individual wheat products, gross farm value, byproduct allowance, net farm value, and farmer's share are based on market price of wheat received by farmers plus 70 cents per bushel, the cost of the marketing certificate to millers and the value of the domestic marketing certificate received by farmers complying fully with the Federal Wheat Program.

3/ For wheat only.

4/ Based on market price of corn received by farmers; no allowance made for price support payment received by farmers who comply with Federal Feed Grain Program.

5/ Net farm value adjusted for Government payments to producers was 28.7 cents, farm-retail spread adjusted for Government processor tax was 32.9 cents, and farmer's share of retail cost based on adjusted farm value was 48 percent.

Table 21.--The market basket of farm food products: Indexes of retail cost, farm value, farm-retail spread, and farmer's share of retail cost, 1947-64 1/

(1957-59=100)

Year	Retail cost	Farm value	Farm-retail spread
1947	88	113	71
1948	95	120	78
1949	89	105	79
1950	89	105	78
1951	99	120	84
1952	100	117	88
1953	97	108	89
1954	95	102	90
1955	93	96	92
1956	94	94	93
1957	97	98	96
1958	103	105	101
1959	100	97	102
1960	101	99	102
1961	101	98	104
1962	102	99	105
1963	103	96	107
1964	103	96	107

1/ Based on preliminary estimates of revised market basket totals.

The Marketing and Transportation Situation is published in February, May, August, and November.

The next issue is scheduled for release in February 1965

OFFICIAL BUSINESS

NOTICE

If you no longer need this publication,
check here ☒ return this sheet,
and your name will be dropped from
the mailing list.

If your address should be changed,
write the new address on this sheet
and return the whole sheet to:

Division of Administrative Services (ML)
Office of Management Services
U. S. Department of Agriculture
Washington, D. C. 20250.

USDA. Econ. Research Service
Norman J. Wall
10-5-61 Farm Econ. Div.
FRPS Agri. Finance Br.

MTS-155 Marketing and Transportation Situation